

THE EVOLUTION
OF
CONSCIOUSNESS
—
HALL



Cornell University Library

BOUGHT WITH THE INCOME
FROM THE

SAGE ENDOWMENT FUND
THE GIFT OF

Henry W. Sage
1891

A 227255 17/10/08

The date shows when this volume was taken.

To renew this book copy the call No. and give to the librarian.

HOME USE RULES.

~~MAY 10 1955 F R~~

~~MAY 7 1960 G Z~~

~~MAY 12 77 AP 11~~

All Books subject to Recall.

Books not used for instruction or research are returnable within 4 weeks.

Volumes of periodicals and of pamphlets are held in the library as much as possible. For special purposes they are given out for a limited time.

Borrowers should not use their library privileges for the benefit of other persons.

Books not needed during recess periods should be returned to the library, or arrangements made for their return during borrower's absence, if wanted.

Books, needed by more than one person are held on the reserve list.

Books of special value and gift books, when the giver wishes it, are not allowed to circulate.

Readers are asked to report all cases of books marked or mutilated.

Do not deface books by marks and writing.

Cornell University Library

BF311 .H17

Evolution of consciousness.



3 1924 029 033 771

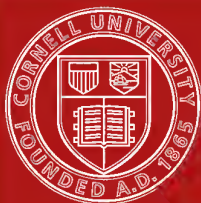
olin

BF

311

H17

THE EVOLUTION OF CONSCIOUSNESS.



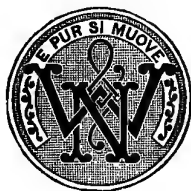
Cornell University
Library

The original of this book is in
the Cornell University Library.

There are no known copyright restrictions in
the United States on the use of the text.

THE EVOLUTION OF CONSCIOUSNESS.

BY
LEONARD HALL, M.A.



WILLIAMS AND NORGATE,
14, HENRIETTA STREET, COVENT GARDEN, LONDON;
AND 7, BROAD STREET, OXFORD.

1901.

All rights reserved.

292

17/8/08

~~7246F80~~

A.227255

PRINTED BY
NEILL AND COMPANY, LIMITED,
EDINBURGH.

MW

PREFACE.

IN the following pages I have attempted to trace the evolution of consciousness from the simplest kind of consciousness manifested in animal life to the complex consciousness of man. The only kinds of human consciousness which are here excluded from consideration are deductive reasoning and some of the higher emotions. It is hoped to take up these subjects, or at least the former of them, in a future publication.

An introductory chapter is devoted to a brief consideration of a theory of the nature of man which I have propounded more fully elsewhere. It may be as well to state, however, that the reasoning in the subsequent chapters, although it touches on this theory here and there in one or two minor points, is for the most part independent of it.

L. H.

April 1901.

CONTENTS.

	PAGE
CHAPTER I. INTRODUCTION,	7
„ II. THE NERVOUS SYSTEM,	13
„ III. SENSATION,	20
„ IV. REPRESENTATION,	28
„ V. ACTION,	40
„ VI. MEMORY,	46
„ VII. INTELLIGENCE,	56
„ VIII. PERCEPTION,	65
„ IX. SELF,	76
„ X. CONCEPTION AND IMAGINATION,	88
„ XI. THE WILL,	93
„ XII. MORAL OBLIGATION,	115
„ XIII. THE WILL—(<i>continued</i>),	129
APPENDIX,	146

THE EVOLUTION OF CONSCIOUSNESS.

CHAPTER I.

INTRODUCTION.

THE living parts of the human body are composed of unicellular animal organisms, its various tissues being built up of different varieties of these simple organisms. For the sake of brevity, we shall term these simple unicellular animal organisms *monads*. Therefore, the human body may be regarded as a community of monads.

Further, it is known that the process of "division of labour" is observed in the community of monads as much as in communities of men, and that, so far as they are physical, the actions of the monad community are combined and co-ordinated actions of the monads, just as the actions of the social community are the combined and co-ordinated actions of the individuals of the community. For example, the different organs of the body are composed of monads specialized to perform different functions.*

In the following pages we shall endeavour to prove that the phenomena of the human mind, as well as those of the body, result from the social evolution of the community of monads, whereby the consciousness of the monads of the

* For a consideration of the analogy between the two communities see the Appendix.

nervous system is combined and co-ordinated (integrated) into the complex consciousness of man.

In order to discover how the consciousness of the monads came to be combined and co-ordinated for the performance of concerted and co-ordinated actions, we shall first inquire how the like result is produced in the social community, or community of men.

The combination and co-ordination of actions in the social community are effected by the circulation of consciousness in the community. Co-operative action would be impossible if there were no means of communicating consciousness from mind to mind. On the other hand, the passage of consciousness from one member of the community to another makes it possible for the actions of the individuals to be combined and co-ordinated. There are four ways in which this communication of consciousness takes place, (1) by writing, printing, etc., (2) by speech, (3) by gesture, and (4) by observation of one another's actions. In each case, the circulation of consciousness is caused by a motion, the consciousness produced being the effect of the motion on the mind. Even the lowest form of concerted action, produced by the imitation of an observed action of another, implies that the movements of one individual produce consciousness in others.

Thus, in the social community, currents of motion pass from one member of the community to another, producing the effect of consciousness on each member as it passes along.

In the case of the government of the community, the currents of motion and the resulting currents of consciousness take definite courses to and from the centres of government, principal or subordinate (local). These may be called the afferent and efferent currents of motion and consciousness respectively. By means of these currents of consciousness

the concerted and co-ordinated actions by which the community is governed are produced.

Returning now to the consideration of the monad community, we shall find that the combination and co-ordination of the actions of the monads are produced in a precisely analogous manner. We know that there are afferent and efferent currents of motion to and from the nervous centres respectively, and the following considerations justify the inference that these currents of motion produce a circulation of consciousness in the nervous system analogous to that which takes place in the social community:—

In the first place, since we know that motion produces the effect of consciousness on the human mind (for example, aërial vibrations produce the effect of hearing, ethereal vibrations the effect of seeing, etc.), it is only natural to suppose that motion produces a similar effect (though less in degree) on the minds of the monads, and therefore that the currents of motion, which we know to be continually traversing the nervous system, produce the effect of a simple form of consciousness on the minds of the monads as they pass along.

In the second place, just as it is impossible that there can be any combined and co-ordinated action in the community of men unless there is a communication of consciousness from one to another, so it is impossible that there can be any combined and co-ordinated actions in the monad community, unless there is a communication of consciousness from one to another. As the actions of a free-living monad are governed by the consciousness of the monad, so also the co-operating actions of a community of monads must be governed by the combined and co-ordinated consciousness of the monads.

Assuming, then, that there is a circulation of consciousness in the monad community, we have now to enquire

whether such circulation of consciousness is adequate to account for the evolution of the consciousness and actions manifested by the monad community.

The unity of human consciousness compels us to regard it as the consciousness of one monad. Indeed, the only possible way in which the consciousness of different monads can be combined together to form the consciousness of one subject is by the transmission of their consciousness to one monad. By this means, and by this means only, can the sensations of the different senses, sight, hearing, touch, taste and smell, be made the sensations of the same subject, and this sentient subject be made the same as the subject of human emotion and human intelligence. In this way the consciousness of many monads is gathered together, as it were, to form the elements of a compound system of consciousness, the consciousness of one monad, the subject of them all. For this reason, and others which have been fully set out elsewhere,* we are obliged to believe that there is a *principal monad* in the monad community, whose function in the community corresponds with that of a king in an absolute monarchy, which consists in (1) receiving the afferent currents of the community, and (2) giving origin to the efferent currents of the community.

Similarly, we shall suppose that at every subordinate nervous centre there is one monad which gathers together or integrates the consciousness of a part of the community, receiving the local afferent currents and giving origin to the local efferent currents for the performance of involuntary actions, or passing on the afferent currents to a higher centre of consciousness, as the case may require. It is manifest that it is the function of these chief subordinate monads to guide the physical currents in the proper directions for the performance of adapted actions. They must, therefore,

* *Man, the Microcosm.* Williams and Norgate, London.

be psychically affected in different ways by the different currents which they receive, different in character or direction or combination, and must have acquired habits of passing on the currents in different ways in accordance thereto.

In order, therefore, that our theory may be completely established, it must afford satisfactory answers to two questions:—It must show that the social evolution of a community of monads is adequate to develop (1) in the principal monad, the wonderfully complex consciousness which is manifested by man, and (2) in the subordinate monads of the nervous system, the capacity to act in combination and co-ordination with one another in the manner required for the guidance of the physical currents in their proper courses.

The first of these questions will be answered in subsequent chapters. The remainder of the present chapter will be devoted to the consideration of the second question.

In the monad community, actions are concerted and co-ordinated to a very much greater extent than those of a community of men. It requires to be explained, therefore, how it is possible that beings of such low intelligence as the monads can be made to act so perfectly in combination with one another.

The degree of efficiency with which individuals can be made to act in combination with one another depends on two things:—(1) the degree of their intelligence, and (2) their training. It is known that performing dogs (for example) can be trained to perform concerted and co-ordinated actions which seem to manifest a much higher degree of intelligence than they actually possess. Further, even if their intelligence were much less than it is, they could be made to perform the same actions at the cost of more pains in training them. Now, the training in the case of the monad community infinitely transcends anything

of the kind which takes place in communities of men. Therefore the perfect manner in which the monads act in concert and co-ordination with one another does not imply that they possess more than a very low degree of intelligence, such as free-living monads possess. This is made more manifest when we consider what the monads are required to do. We have seen that what is required is that some of the monads (1) should be able to distinguish between the different currents of motion which they receive, and (2) should have acquired habits of passing on the currents in the proper channels for the performance of the appropriate actions.

(1) This does not imply a high degree of intelligence. It is the faculty by which man and the animals generally distinguish between the sensations caused when they are touched on different parts of the body. It is possessed by animals which are the lowest in the scale of creation. The experience of countless centuries of evolution has made all animals proficient in the exercise of this faculty.

(2) The power of acquiring habits is possessed by all conscious beings, and the acquisition of habits of acting in particular ways in response to particular stimuli is a matter of practice rather than intelligence. Some intelligence is, of course, necessary; but not more than is possessed by all conscious beings.* Therefore, there is nothing unreasonable in supposing that certain monads of the nervous system have gradually acquired the habits in question in the course of the evolution of animal life.

* Doubtless the consciousness manifested is of such a vague character as to be hardly worthy of the name; but we are obliged to believe that something of the same nature as consciousness is manifested.

CHAPTER II.

THE NERVOUS SYSTEM.

THE nervous system is continually being traversed by waves of molecular energy. These waves are produced at the extremities of the nerves, and pass along the nerves to the nervous centres. In the case of the nerves of the senses, the waves are produced by the vibrations of the portions of the environment in contact with them, vibrations of ether, air, and of the molecules of solid and liquid bodies. In the case of internal nerves, the waves are produced by the vibrations of the molecules of the internal organs of the body.

These waves of molecular energy are currents of motion. Some kind of vibratory motion is rapidly passed from molecule to molecule. We shall speak of them, in future, as physical currents. When these afferent physical currents reach the nervous centre, they, somehow or other, cause to be generated much stronger physical currents from this centre along the efferent nerves to the muscles. Their effect on the muscles is to cause them to contract, whereby are produced all those movements of the body in adaptation to its environment, of which so large a part of human life consists.

Is the afferent current the sole cause of the efferent current, and, therefore, of the movements of the body? By no means. Consider the enormous energy of motion with which a tiger leaps upon its prey. It is obviously impossible that the relatively weak afferent currents which proceed

from the eyes to the brain, and cause the tiger's perception of its prey, can be the sole cause of the enormously strong efferent currents which produce the animal's powerful spring.* The afferent currents are able to produce such a powerful effect because they act on the brain in such a way as to liberate some of its potential energy. In other words, they transform some of the potential energy stored up in the brain into the actual energy of motion, which passing along the efferent nerves in the form of the strong currents before referred to, produces the extraordinarily energetic movements which go to make the tiger's spring.

The human body may, therefore, be regarded as a machine similar, in principle, to the locomotive steam-engine. As the steam-engine is a machine for converting the potential energy of coal into the actual energy of motion, so the human body is a machine for converting the potential energy stored up in the brain and nerves into the actual energy of motion in the shape of the various movements of the body. And as the engine-driver is able to produce this transformation of the potential energy of coal into the actual energy of the train's motion by performing the relatively slight actions necessary to start the train, so the environment of man is able by means of the comparatively slight afferent currents to produce in the brain the transformation of a relatively large amount of potential energy into the actual energy of motion, which, proceeding along the efferent nerves to the muscles, causes the latter to contract and thus produce the various bodily movements which man exhibits. The energy contained in the afferent currents is

* We shall show, in the sequel, that these afferent currents do not *by themselves alone* even produce the perception of the prey. They do this only by passing to nervous centres in the sense department of the brain and there liberating potential energy which, transformed into motion, passes in the form of physical currents to the principal nervous centre of the brain.

no more adequate, unaided, to produce the movements of man, than the strength of the engine-driver is, unaided, adequate to produce the motion of the train. Further, as the potential energy of the coal used up by the steam-engine is renewed by a fresh supply of coal, so the potential energy of the brain used up by the movements of the body is renewed by the food which is taken into the body at frequent intervals.

This explanation enables us to see that the enormous energy with which a tiger springs upon its prey is derived from the potential energy of the brain, a portion of which is liberated (that is to say, transformed into the actual energy of motion) by the relatively slight molecular waves or currents from the eyes to the brain which produce the perception of the prey.

Having explained the source of the energy which produces the movements of the body, we now have to consider how this energy is guided so as to reach the proper muscles, and thereby produce movements which are adapted to the environment. This guiding function is performed by consciousness.

Whatever may be the nature of consciousness, there is no doubt that it is always caused by motion. The sensations of sight are caused by the vibrations of ether against the monads of the retinæ of the eyes. The sensations of hearing are caused by the vibrations of the molecules of air against the monads of the tympanum of the ear. Tactual sensations are caused both by the vibrations of the molecules of the bodies touched, and by the pressures or forces which the latter exert on the part of the body touched. And since it is in the nature of a force to cause motion in bodies which are at rest, we are justified in inferring that these pressures produce sensation because they set in motion the monads of the tactual nerves.

That emotion, memory, and intelligence are caused by motion (which, indeed, is pretty obvious in the case of memory) will appear presently, when we shall see that they are all developed from the simplest kind of sensation.

Further, different kinds of vibration produce different kinds of sensation. Thus vibrations of ether produce sensations of sight, while vibrations of air produce sensations of hearing, and so on. And again, sensations of different colours are produced by ethereal vibrations of different periods. Lastly, different intensities of vibration produce different intensities of sensation.

We are justified, therefore, in inferring that to any particular kind of consciousness of a monad, there corresponds a particular kind of vibration of the monad, which is the cause of that consciousness.

The transmission of the physical current through the nervous system is governed by laws which may be stated thus:—

I. The passage of the physical current along any particular course enables the current to be transmitted along this course more readily and rapidly in future. In other words, the nervous system offers less resistance to the passage of the current in this course on future occasions.

The proofs of this law are to be found in all our experiences of mental phenomena. Thus the more often an action has been performed in the past, the more readily and rapidly can it be performed in the future. Whence it follows that the physical current passes with greater rapidity from the centre of consciousness along the efferent nerves to the proper muscle, the more frequently the action has been performed in the past.

This law is in harmony with our knowledge of physical phenomena; for it is obeyed by many other kinds of physical motion.

II. Recent passages of the current in any particular course have much more effect in rendering the passage along this course more rapid than passages more remote.

This law is proved by the comparative ease with which habits can be changed. The following account of a change of habit, which actually occurred as stated, is a case in point. A smoker in the course of twenty years' daily practice in making cigarettes, had acquired the instinctive habit of wetting the gummed edges of the cigarette-papers by applying his tongue to them. Being told, however, that this practice might perhaps be a little harmful, he resolved in future to use his finger instead of his tongue for this purpose. In a week the latter practice had become instinctive. A week's recent practice was more effective in determining the course of the physical current than the more remote practice of twenty years.

III. When the vibrations of the principal monad are very intense (that is to say, in cases of strong emotion), the physical current does not wait to be directed in its course by memory and intelligence, but passes at once in directions which offer least resistance.

This is proved by well known phenomena of consciousness. For instance, when a man is suddenly startled, he makes violent movements which are quite purposeless. Again, extreme pain produces purposeless contortions of the face, and, in extreme cases, strong convulsive movements all over the body. The courses selected by the physical current in these cases are those which are most often used in actions directed by intelligence. First, the muscles of the mouth are moved, then other facial muscles, the arms and the vocal cords. Finally, if these outlets of the physical current are insufficient, the other muscles of the body are called into action.

We infer from these laws that, in general, when an afferent

current reaches the principal centre of consciousness, a delay for a certain time takes place in its further progress, the time, namely, which is required for consciousness to guide the efferent current in its proper course, so that the resulting action may be adapted to effect a purpose; but that, in cases of strong emotion, the efferent current proceeds in some other course, without waiting for the guidance of consciousness, effecting a movement which is purposeless. In other words, in general, the course of the physical current is stopped for a time at the centre of consciousness by the resistance which it there meets with; but when the vibration produced at the centre of consciousness is very intense, the resistance is overcome, and the current proceeds, although not in the proper direction.

The delay lasts until the process of memory and intelligence is completed, when the current at once passes in the proper direction.

Now, since consciousness has been continually changing during this interval, and since we have shown that consciousness is always caused by motion, we infer that the corresponding vibration produced at the principal nervous centre has been continually changing during this interval.

In the case of actions directed by intelligence, therefore, the afferent currents, on reaching the principal nervous centre, liberate a certain quantity of potential energy, transforming it into the energy of vibration. This vibration produces the corresponding consciousness. It is, however, of such a character that it cannot readily pass away in any direction, in consequence of the resistance offered by the nervous system. A certain process then takes place (a process which we shall endeavour to explain later) which results in a gradual change in the character of the vibration at the centre of consciousness, and this change goes forward until the vibration becomes of such a character that it can

pass in a particular direction, the direction, namely, which leads to the performance of the appropriate action.

When, however, the vibration thus produced is very intense, it is able to overcome the resistance offered by the efferent nerves, and, without waiting to be altered in character, passes along courses which offer the least resistance, and effects movements which are entirely purposeless.

CHAPTER III.

SENSATION.

HUMAN consciousness has been derived from the consciousness of free-living monads by the same process of evolution as that which has evolved the human body from the bodies of monads. The process of differentiation has produced the specialization of the consciousness of the monads of the body, in the same way that it has produced the specialization of their physical activities, and the process of integration has produced combination and co-ordination of these specialized units of consciousness in the same way that it has produced combination and co-ordination of the physical activities of the monads. As the monads of the body act in relation to one another *physically*, so they act in relation to one another *psychically*. Thus human consciousness consists not only of a vast number of units of consciousness, but also of the consciousness of the relations of these units to one another.

Now, the consciousness from which human consciousness has been evolved is the consciousness of a free-living monad, some far-away ancestor of the amœba. How are we to discover the nature of this primitive unit of consciousness? Evidently, the first thing to be done is to abstract from human consciousness all that part of it which is due to the experience of the monad community since it first became a community.

Suppose that I am looking at some near object. In that very short space of time, which we indicate by the words "at a glance," I obtain the following information about the object:—I perceive that there is something at a certain distance from my eyes, in a certain direction, of such or such shape, size and colour, and that its surface is smooth or rough. Possibly, also, I may perceive that it is moving in a particular manner.

This knowledge of an object, and of its relations to other objects, which I obtain "at a glance" by looking at it, is called a visual perception. By means of the other senses I obtain other perceptions of objects, tactual perceptions, perceptions of hearing, tasting and smelling.

Perception does not, however, include all the knowledge of objects which we obtain "at a glance" through the senses. For example, the mere sight of a plant may give to a botanist, at a glance, a great deal of knowledge of the plant which is not included in the term *perception*, knowledge, for instance, of the functions which the different parts of the plant perform in its life-history. The term *perception* is confined to knowledge of the universal attributes of bodies obtained immediately through the senses. These attributes have been so frequently presented in experience that the knowledge of them is obtained, as it were, automatically (that is, without any conscious mental effort) by every person whose senses are normal.

The effect which an object has on the mind is very different from what it would be if we had no past experience of objects. The effect which an object has on the mind may, therefore, be divided into two parts: (1) the effect which it produces independently of experience; * and (2) the effect which is produced by the past experience of objects. We

* That is, independently of experience since the community of monads first became a community.

shall call the former part of the effect the *direct* effect, and the latter part, since it is produced indirectly by the calling up into the mind of representations or ideas of past perceptions, in accordance with the laws of association, we shall call the *indirect* effect.

If we look into the matter closely, we shall find that all the *meaning* * in our perceptions is due to the perceptions of the past, dating back to the origin of life. If it were not for the past experience of objects, I should be wholly unable to perceive the distance from me, size, shape, or even colour of the object that I am now looking at. Indeed, were it not for the past experience of objects, I should not even be able to perceive that there is any object at all independent of myself. I should merely be conscious of a particular feeling. The effect of the object upon my mind would be a certain feeling, and nothing else. I should not be able to infer anything from this feeling (that it is caused by something independent of myself, at a certain distance, etc.); for there would be no past experiences on which to base such inferences. For example, it is only by means of past experience that we are able to obtain a visual perception of the convexity of the convex surface of a body. By walking up to the object and passing the hand over it, we should obtain a tactual perception of the convexity; but it is only by experience, by finding that certain kinds of visual sensations are always associated with convexity, and certain other kinds of visual sensations with concavity, that we gradually acquire the skill to infer the convexity and concavity respectively by visual perception alone. Again, if, for the sake of argument, we abstract the effect of the past experience of objects, the effect of an object upon a man would not contain the belief that it

* We shall presently find that the *meaning* in our perceptions consists of *inferences*.

was produced by an existence independent of himself. He would simply have a particular feeling, and it would be impossible for him to make any inference regarding the cause of that feeling.

Therefore the *direct* effect of any object on the mind is a wholly unmeaning subjective feeling. We shall call this feeling a *sensation*. It is that part of a perception which remains when we have divested it of all meaning.*

Similarly, other kinds of consciousness besides perceptions are composed of an unmeaning part and a meaning part, of which the latter is composed of inferences which have been generated by experience. The unmeaning parts of every kind of consciousness we shall call *sensations*. For example, the unmeaning parts of the consciousness which arises within the body are sensations. The unmeaning parts of all pleasant or painful feelings, or feelings of comfort or discomfort, are sensations. If we abstract from a toothache the inference by which we localize it, what is left is a sensation.

Thus sensations are the unmeaning parts of our consciousness, whether it has its source at the extremities of the nerves on the outside of the body, or of those which originate within the body.

There are not, of course, any *pure* sensations in human consciousness. All our feelings have come to have some meaning. In fact, as soon as life appeared on our planet, experience of sensations would begin to add meaning to them. It is probable that we get nearest to pure sensation in the sensation of hunger, considered apart from the desire for food, that is to say, considered as simply a feeling of discomfort. Nevertheless, even this feeling is vaguely localized, and, therefore, is not entirely without meaning.

* That is, of all the meaning which it has acquired since the origin of the community. Sensations themselves have a little meaning, as we shall presently see.

We have said that sensation is the unmeaning part of consciousness, but this is not absolutely true; for, as we shall presently see, the simplest sensation comprises something in the nature of memory and intelligence. The sensation of a free-living monad contains a small element of meaning, the meaning given to it by its own individual experiences as a free-living monad and the inherited effects of ancestral experiences. Hence it appears that all consciousness contains two elements, an unmeaning part and a meaning part. Consciousness, therefore, falls naturally into two divisions: (1) that part in which the meaning element is more prominent; and (2) that part in which the unmeaning element is more prominent. The latter division is called Feeling, and the former Knowledge, or Cognition.* Feeling comprises our sensations, emotions, and memories of sensations and emotions. Knowledge, or Cognition, comprises our perceptions, inferences, reasonings and the larger part of memory, consisting of the memories of perceptions, inferences and reasonings.

For example, the emotions of desire and fear are termed feelings, not cognitions, because, although they contain an element of inference, viz., the expectation of pleasurable or painful feeling in the future, yet the more prominent component is the unmeaning pleasurable or painful feeling expected.

When, therefore, we come to examine our consciousness closely, we find that the different varieties of it are not absolutely distinct from one another. Even such extremely different kinds of consciousness as the painful feeling we call a toothache and one of the highest inductions of science are found, on close examination, to be composed of the same two elements, of which one is the more conspicuous in

* Knowledge is here to be understood as including *belief* of all degrees of probability.

the former, and the other in the latter. The feeling of toothache comprises the element of cognition by which we locate it, and the induction of the scientist contains an element of feeling; for he would not exert his intelligence to explain anything unless he were animated by the feeling of desire to explain it. Even in those inferences which do not contain an element of desire (as, for example, the automatic inferences comprised in perception), there is still an element of sensation—the sensation which underlies the perception.*

We have now arrived at a notion of what a pure human sensation would be if such a sensation were possible to us. But this pure human sensation would itself be very complex. It would be composed of a vast number of units of sensation, viz., the sensations communicated to the principal monad by a vast number of monads. For example, a pure human visual sensation would be composed of the units of sensation communicated to the principal monad by the monads of the eyes. Therefore the unit of sensation (the sensation of a particular monad) is very much simpler than the human sensation itself. We can only conceive it as a particular variety of sensation, whereas a pure human sensation consists of the integration of a vast number of such units of slightly differing varieties.

Further, this unit of sensation differs from that of the primitive free-living monad only in being highly specialized. But, as in the human body there are some monads which are very much less specialized than others, so, in human consciousness, there are some units of sensation which are very much less specialized than others. For example, tactual

* This essential identity of nature which characterizes all our consciousness is, in itself, a strong indication that all the varieties of human consciousness have been gradually evolved from one simple kind of consciousness.

sensations are much less specialized than visual sensations. We are led, therefore, to infer that the sensations of a free-living monad are the units out of which are built up the simplest of the human sensations, tactual sensations (that is to say, tactual perceptions from which the meaning has been expelled), sensations of hunger, and the sensations accompanying muscular movements.

We have said that the sensations of the simplest free-living monad necessarily contain an element of meaning, namely, the meaning which has been added to them by preceding experience. This is proved by the consideration that a sensation, however simple, must last for some time, however short a time, and therefore must contain the memory of a little of the past. A sensation which lasted no time would not be a sensation at all, just as a motion which lasted no time would not be a motion at all. Thus sensation necessarily contains a germ of memory. Further, except in its most simple form, it must also contain a little of that kind of intelligence which looks forward into the future; for, as we shall presently see, experience would necessarily generate such intelligence. But if we consider the consciousness of a simple free-living monad which is capable of experiencing sensations only, then in such a monad, memory and intelligence are confined in their scope within the limits of the sensation. The successive sensations are independent of one another. The memory and intelligence which are contained in a sensation may be called memory and intelligence of the *first order*. They combine together into a whole the parts of which the sensation is composed. In the course of evolution the scope of memory and intelligence is extended beyond the limits of the present sensation to preceding and succeeding sensations respectively. Thus arise memory and intelligence of the *second order*, by which perceptions are evolved. Later perceptions

are integrated together by what may be called memory and intelligence of the *third order*. And thus the process goes on, until we arrive at the complex consciousness of man, which is able to look back many years into the past and to look forward many years into the future.

Starting with sensations, and therefore assuming memory and intelligence of the first order, we shall now endeavour to show how the experience of sensations gradually extended the scope of memory and intelligence beyond the limits of the present sensation, so as to bring into present consciousness memories of past sensations and expectations of future sensations.

CHAPTER IV.

REPRESENTATION.

WE have, then, for our starting-point, sensation. What is the first step in the evolution of consciousness? A consideration of the higher forms of consciousness, that is to say, of those which are more complex, and therefore evolved later, than sensation, proves that they all contain a common element.

Let us first consider memory. Memory consists of two distinct faculties. In the first place, there is a faculty by which a consciousness faintly resembling a past consciousness is called up into present consciousness. We shall call this faculty the faculty of *representation*, and the faint resemblance itself we shall call a *representation* or *idea* of the past consciousness. It is manifest that this faculty by which past consciousness is represented in present consciousness is quite distinct from the faculty which assures us that this idea is a representation of a past consciousness. The mere recurrence of a past consciousness, although a necessary part of memory, is not, in itself, a memory at all any more than the annual recurrence of the blossoming and fruiting of a tree are of the nature of memories. That which constitutes the more essential part of memory is the conviction that is somehow or other produced in us by this representation—a present consciousness—that it represents a consciousness which we experienced in the

past. And not only does it represent to us a past consciousness, but it places that past consciousness more or less definitely in its proper position in the past. The latter faculty is the more essential part of memory. Thus memory is compounded of the two distinct faculties, representation and memory proper.

Again, intelligence is the expectation of future consciousness. But in order that it may be possible to expect any kind of consciousness in the future, it is necessary that an idea or representation of that consciousness should be first brought into present consciousness. If I eat an orange with the expectation of experiencing a certain sweet sensation, an idea or faint resemblance of this sweet sensation must first have been called up into my present consciousness to render it possible for me to expect it in the future. This idea of a sweet taste is a representation of sweet sensations obtained by eating oranges in the past. Therefore intelligence is compounded of the two faculties, *representation* and *expectation*, the latter being the more essential part of intelligence.

Again, when we come to treat of perception, we shall show that it is of the same nature as intelligence. The meaning contained in a perception is a group or bundle of inferences. Each inference involves a representation or idea of the thing inferred. My perception of an orange contains the inference that it is a round object. But, in order that I can make this inference, I must first have the idea of roundness called up into present consciousness. Therefore perception contains the element representation.

Again, consider the emotions of desire and fear. It is impossible either to desire or to fear anything, unless there is present in consciousness an idea or representation of the thing desired or feared. Therefore both desire and fear contain the element representation.

The faculty of representation is, therefore, a common element in all these higher mental faculties. Further, it is an element which must have been evolved before any of these faculties, for it is manifest that the evolution of more complex kinds of consciousness from sensation would be impossible without this faculty. It is a necessary condition for the evolution of higher kinds of consciousness from sensation that the experience of sensations should gradually evolve a faculty for calling up representations of (that is to say, ideas resembling) past sensations. Without a faculty of this kind there could be no integration or combination of sensations.

The question how this faculty was developed is the most vital question in the whole range of psychology. What we have to explain is why, under certain circumstances, faint resemblances or ideas of past sensations are called up into and combined with the present sensation. Why, when the sensation A has been frequently followed in experience by the sensation B, does it come to pass that, when A is presented, a faint resemblance or idea of B is instantly called up to the mind *before* the presentation of B, and even when B is not presented at all? For example, in the experience of an animal which is the prey of a lion, the roar of a lion has been frequently followed by the sight of a lion. Why does this frequently repeated experience cause it to come to pass that the roar of a lion instantly calls up in the animal's mind the faint resemblance or idea of a lion before the lion appears, and even when it does not come into sight at all?

Again, if the relation between the two perceptions be not one of sequence only, but of co-existence—that is to say, if the two perceptions be presented frequently, not in one order only, but in either order indifferently—we have further to explain why there is a tendency for the

presentation of either to call up a faint representation of the other.

We shall now endeavour to explain how this faculty of representation has been developed. We shall do this by, firstly, showing how the scope of the faculty has been gradually widened so as to call up representations of past perceptions which are more and more remote, and by, secondly, showing that the same process by which the scope of the faculty has been widened is sufficient to account for the development of the faculty from that simple germ of it which is possessed by the simplest free-living monads.

Taking the example mentioned above, let us assume that the prey of the lion is capable of receiving perceptions (which, of course, assumes that it already possesses the faculty of representation to a certain degree of development), and that it knows how to act when it sees a lion, but has not learned how to act when it hears the roar of the lion. Let A represent those monads of the senses which are affected by the roar of the lion, B those which are affected by the sight of the lion, and C the principal monad. Then, on occasions when both perceptions occur together, physical currents pass from A to C and from B to C almost simultaneously. They do not pass quite simultaneously, however, but alternately in close succession. Each of these currents liberates a certain portion of the potential energy of the brain, producing corresponding emotions. The roar of the lion produces a vague fear or startled feeling, while the sight of the lion produces a definite fear which prompts (as we have assumed) to the appropriate action. Thus the vibration corresponding to the latter fear has a ready means of transmission in the proper directions for effecting the action of getting away from the lion. The vibration corresponding to the former fear has no such ready means of

transmission, but there is a tendency for it to pass along the course of least resistance. Now, currents have just previously passed from B to C. Therefore, since recent passages of the physical current in any course have very much more effect in making future passages in that course easy than more remote passages, it follows that the extremely recent passages of currents from B to C must make the course from C to B very much more readily passable, for the moment, than any other course. It is, therefore, the course of least resistance, for the moment. Therefore, the physical currents from A to C pass from C to B. Again, the physical current from C to B meets with a certain amount of resistance in its course, and therefore (as is always the case when a wave of vibration meets with resistance) a certain part of it is reflected back to the principal monad, producing there a consciousness which has a tendency to resemble the perception from B. This consciousness is, however, very faint, since the reflected current which produces it is only a small part of the current from C to B, while the latter is only a portion of the current from A to C.

This passage of the current from C to B and back to C does not take place once only, but many times on each occasion of the presentation of the two perceptions together. For the perceptions are not, strictly speaking, presented together, but alternately, in close succession. While one perception is a presentation, the other is a representation and *vice versa*. Therefore the current passes from C to B and back to C many times on each occasion of the presentation of the perceptions together. Every succeeding passage of the current makes the representation less imperfect. It follows, therefore, that on the next occasion when the animal hears the roar of a lion, there will be a tendency to the production of a representation of the lion stronger in

proportion as the occasion occurs in the near future. We are therefore able to understand how experience has gradually established relations in consciousness which answer to the relations between objects. The repeated experience of a relation of co-existence between two objects in the environment gradually establishes such a relation between the perceptions of them in consciousness that when one occurs it is immediately followed by a faint representation of the other.

We have said that when one of the perceptions occurs there is a tendency to the production of a faint representation of the other. This tendency has been developed by the process of evolution, because it is useful in making animals respond more quickly to their environment. We have assumed that the animal knows what to do when it sees the lion. And since representation is a step in the process (to be presently explained) by which the animal is enabled to expect the coming of the lion before it comes into sight, it is manifest that any tendency to the production of representation would be continually developed by evolution.

There is, however, one apparent objection to the above reasoning. It may be urged that the first beginning of the production of the representation of the lion would bear such a slight resemblance to the perception of a lion as to be useless in helping the animal to respond to its environment; in other words, to act appropriately. But this difficulty is satisfactorily met when we consider that, in the earliest stages of the development of representation, no such complex and definite perceptions as that of a lion are in question. The only perceptions possible in such early stages are extremely simple and vague in character. To produce a sufficiently close resemblance of these latter simple and vague perceptions to be useful in guiding

action, was, therefore, not beyond the scope of the process we have described. Therefore, representation may be regarded as an imitation of past perceptions developed by the process of evolution in a manner similar, in some respects, to the manner in which the same process has produced, in some insects, imitation of the markings of other insects belonging to different families. As perceptions have become more and more complex and definite, their imitations have kept pace with them step by step.

There is still, however, a difficulty to be removed before the above process can be accepted as an adequate cause of the development of the faculty of representation. While the process accounts for the gradual development of the representation of those perceptions which have been continuously developed from the most simple and vague beginnings, it would, at first sight, seem inadequate to account for the development in the life of an individual of representations corresponding to associations not previously presented in the experience of the race. Yet we know that even animals can be brought to go through new complex actions quite different from their natural actions. In order to explain such cases of representation, we must bear in mind that animals capable of performing such actions possess highly developed nervous systems. Now, the effect of evolution on the nervous system has been to render it capable of conducting the physical currents more and more readily. Again, it is manifest that the process of the imitation of past perceptions which we have described depends entirely on the conductivity of the nervous system in regard to the physical currents. When this conductivity has been very greatly increased, a comparatively short time will suffice, if the experiences which tend to produce the representation are frequent in that time, to ensure, when one of the perceptions is presented in consciousness in the future, the

production of the representation of the other. If it be still objected that it seems impossible that the difference in the conductivity of the nervous system can be so great as to make the experiences of an individual life sufficient to generate adequate representations, we must call to mind Law iii. of Chapter II., which states that recent experiences are much more effective in generating representations than remote experiences. If habits of twenty years' standing can be changed to new habits acquired in a week, it is not surprising that, in a nervous system of a high degree of conductivity, the experiences of a lifetime are as effective in generating representations as experiences repeated throughout the whole history of the race in a nervous system of a much lower degree of conductivity.

* The same reasoning suffices to explain why, in the case of man, a single association of two objects or events in the environment, if sufficiently striking, is adequate to ensure a corresponding association of the perceptions in consciousness, so that, at any time in the future, even if it be many years hence, the presentation of one perception will call up a representation of the other: for, in the first place, the co-existence or sequence is a striking one; in other words, it produces a strong vibration of the principal monad; therefore the current from C to B and back to C is unusually strong, and therefore has a correspondingly strong effect in rendering future passage along this course easier; in the second place, the conductivity of the human brain is enormously greater than that of animals; therefore the experience being the same, there is much less loss of intensity in the passage from C to B and back in the human brain than in that of animals; or, what comes to the same thing, a very much less experience will produce, in the human brain, a representation equally vivid with that produced in an animal's brain by a very much longer experience; in the third place,

the human mind is very much more susceptible of the emotions of surprise, wonder and interest than the animal mind, and when experiencing either of these emotions, its attention is much less easily diverted to other things, and since the passage of the current from C to B and back to C is being continually repeated as long as the attention of the mind is given to the co-existence or sequence under consideration, the current passes, for each co-existence or sequence, very many more times in the case of man than in the case of animals: for all which reasons, the effect of a single association of objects or events in the environment, in producing representation, is very much greater in the case of man than in the case of animals. To sum up, when we consider that, in the case of man, the current is much more powerful, is much more readily conducted (and therefore suffers much less loss of intensity), and for each striking association passes very many more times than in the case of animals, we are able to understand how the presentation of a single co-existence or sequence in the environment may, in man, be adequate to ensure that the presentation of one of the perceptions, at any time in the future, will produce a representation of the other.

This explanation enables us to understand also why the sight of a lion would not call up a representation of the roar of a lion, or, at least, why the tendency for the production of the representation is much less in this case. The emotion caused by the sight of the lion would have the readiest vent in the performance of the appropriate action, and therefore the physical current would not pass to A.

It is manifest that this process by which the faculty of representation has been developed from a simpler to a more complex stage is adequate to account for its development from that simplest stage in which it is necessarily present in the simplest sensation.

This process of representation is obviously precisely analogous to that by which the actions of the social community are controlled, namely, the consultation of precedents contained in the records of the Foreign Office, which is that department of the government of the community which corresponds with the sense department of the brain in the monad community. When the afferent current of consciousness reaches the king, a certain delay takes place, during which the current passes from the king to the Foreign Office and back to the king, who thus obtains information of what has been done in the past in similar circumstances, and regulates his action in accordance therewith.

Representations are produced by three different kinds of association: (1) association of sequence; (2) association of co-existence; and (3) association of similarity or likeness. We have explained how representations are produced by the two first kinds of association. We have now to explain how representations are produced by the third kind of association.

Suppose A and A' to represent two similar mental states, of which the former has been frequently presented in experience. Then, if A and A' contain a common part α , when A' is presented, and therefore also α , the association of co-existence between α and A calls up A. If A and A' do not contain a common part, suppose B to be a third mental state which has been frequently associated in the past with A. Then, since A' is like A, there is a tendency, strong in proportion to this likeness, for A' to call up B, and then the association between B and A calls up A. Therefore, there is a tendency for similar things to call up one another into the mind.

Representations of past sensations sometimes give rise to memories and sometimes to expectations (or inferences), and

sometimes to both memories and expectations (or inferences).^{*} For example, in the automatic intelligence which we call perception, the representations give rise to inferences only, not to memories. When we perceive (that is, automatically infer) that an object is round, we do not remember the particular occasions in the past when we experienced the tactual sensations which round objects give. The same is true of all acts of automatic intelligence. The sight of a bud makes me expect the appearance of a flower in the future. I make this inference without remembering the particular occasions in the past on which buds have grown into flowers. The representation or idea of a flower is called up by the faculty of representation, and becomes representative of a future sensation only.

Again, as an example of a case in which the representation of a past perception is regarded as representing both a past perception and a future perception (in other words, gives rise to both a memory and an inference), suppose that I go to a theatre, and, on looking at the programme, notice that the company is the same company that I recently saw in the same piece. The names of the members of the company having been previously associated with the manner in which the piece was acted, a representation of the manner in which the play was acted on the previous occasion would be called up into the mind. This representation would be regarded as representing both past perceptions and future perceptions. Let us suppose that the play was well acted on the previous occasion. The representation would give rise to both a memory and an inference. I should remember that the play was well acted on the past occasion, and I should expect that it would be well acted on the present occasion, or, to speak more accurately, in the immediate future.

^{*} For the manner in which representations combine to form conceptions and imaginations, see Chapter X.

The cases in which representations are regarded as representative of past sensations or perceptions only (that is to say, the cases in which memories are not accompanied by inferences) are so obvious as to render it unnecessary to mention any particular example. In the sequel we shall endeavour to explain how representations give rise to memories and inferences respectively.

CHAPTER V.

ACTION.

IN all the actions of animals which are prompted by conscious intelligence, two distinct acts of intelligence are manifested. In the first place, there is the expectation of some pleasure or pain; and, in the second place, there is the expectation that a particular action will serve to procure the pleasure, or avoid the pain. It is not enough that the animal should desire to experience a future pleasure, or to avoid a future pain, it must also know how the one is to be secured, or the other avoided.

For the sake of argument, let us conceive a dog to be without this knowledge, and yet to have the power of recognizing and desiring food. When such an animal perceived a bone, it would not know how to procure and eat it. It would, however, be prompted to take some action; for, being under the influence of the emotion of desire, its excitement would find vent in action of some kind or other. But the actions would not be adapted to the end in view. The animal would wag its tail, and its excitement would find further vent in the action of walking. And since its eyes would be directed towards the bone, the action of walking would bring it nearer to the bone. It would not, however, know enough to stop when it reached the bone (even if it walked straight enough to reach the bone, which would be very unlikely). It would, doubtless, walk past the bone,

and then forget all about it. Such an animal would starve in the midst of plenty.

Both these acts of intelligence involved in the performance of voluntary actions imply that the actions have been performed previously. If an animal knows how to procure a pleasure or avoid a pain, the knowledge must have been derived from past experience. If neither itself nor its ancestors had previously performed the action, or some similar action, it would not now have the idea of the action in its mind; for this idea is a representation of similar actions performed in the past. In the same way, the desire to procure a pleasure, or to avoid a pain, necessarily implies that the pleasure has been procured, or the pain avoided in the past. Desire implies a looking forward to a future sensation. But there can be no expectation of a future sensation, unless that sensation has been experienced in the past. The perception of an apple could not possibly cause me to expect to experience its sweet taste, if neither I nor any of my ancestors had eaten fruit, or food in some degree similar to apples, in the past. Therefore the existence of a desire implies that the action adapted to gratify it has been performed in the past. It follows, therefore, that the development of adapted actions commenced before that of intelligence. Adapted actions were at first performed unintelligently.

Again, as the stage of unintelligent adapted action preceded the stage of intelligent adapted action, so the former stage must have been preceded by a stage in which there were no adapted actions.

A consideration of this primitive stage in the evolution of consciousness presents the following difficulty. How were animals able to nourish themselves before they were capable of performing actions adapted to this purpose? The answer to this question is to be found in the consideration that,

originally, it was not necessary for the animal to do anything in order to be nourished. The food was brought to the animal. The earliest form of animal life lived under water, and was the far-away ancestor of such varieties of free-living monads as now exist. Particles of nutriment were brought to the animal by the movements of the water which always take place, more or less, both in the sea and in lakes and ponds. Since protoplasm is of a sticky consistency, such particles would adhere to the monad, and be assimilated by a process which would at first be purely chemical. In the earliest form of animal life, therefore, it was not necessary that the monad should act in adaptation to its environment. Nevertheless, if the monad could be made to act in adaptation to its environment, such action would be advantageous to it, and would, therefore, be continually developed. The question we have to consider, therefore, is how the adapted actions were evolved in the first instance, before the animal was able to look forward to its future sensations. In order to answer this question, we must consider the case of a monad in the very earliest stage of evolution, the far-away ancestor of the *Amoeba*, consisting of a minute mass of practically homogeneous protoplasm. We must suppose it to be able to experience sensations, slightly pleasurable and slightly painful. But it is capable of nothing more than this in the shape of consciousness. It can neither look forward nor backward beyond its present sensation. It is capable of action in the shape of slight contractions, but it is not capable of performing actions adapted to its environment. It contracts locally on being touched; but this action is merely the physical effect of the molecular wave produced by the contact.

Now let us suppose that a nutritious particle is brought into contact with the monad. The particle would adhere to the monad, and the process of assimilation would be commenced. The contact and the chemical process of

assimilation would produce slight local pleasurable sensations in the adjacent parts of the monad. The physical current set up by the process would produce sensation at all parts of their courses; for we must bear in mind that the simple monad in question is practically homogeneous in all its vital activities, and, therefore, in its sensitiveness. Mind is, therefore, distributed all over the body of the monad. This is proved by the fact that when *any* portion of the monad becomes separated from it, this portion becomes a new monad, exhibiting the same vital phenomena as its parent, and, therefore, possessing mind. Contraction of the part touched would follow the tactual sensation, and, as a consequence, the particle would be slightly drawn into the substance of the monad. Such an action would be advantageous to the monad for two reasons: In the first place, a greater portion of the surface of the particle would be exposed to the chemical process of assimilation; and, in the second place, there would be less chance of the particle being separated from the monad by the action of the surrounding water. For both these reasons, this action would be more and more developed by the process of evolution. Further, the contraction of the part of the monad touched would disturb the equilibrium of the contiguous parts, and the process of evolution would select and gradually develop such motions as were advantageous. Hence it would eventually result that the contiguous parts would move round the particle, on each side, until they coalesced, when the particle would be swallowed. Now, it is manifest that the only way in which evolution could effect this result is by producing an orderly arrangement of the physical currents, which at first would be haphazard, in such a way as to produce concerted and co-ordinated contractions. In this way, the physical currents, which at first took haphazard courses, would come to be restricted in certain fixed

courses, and a local miniature nervous system would be evolved. The afferent currents would converge to a fixed local centre, and the efferent currents would diverge from this centre. The nerves in this miniature nervous system would be merely fixed courses of least resistance. The evolution of this miniature nervous system renders possible the evolution of consciousness, since it renders possible the combination or integration of sensations from different parts of the monad. The afferent physical currents produce currents of sensation which are all combined at the local centre of consciousness. Such miniature nervous systems were evolved all over the surface of the monad.

The action which we have here explained is manifestly the earliest stage in the evolution of the action by which the *Amœba* feeds itself, surrounding the particle of nutriment with pseudopodia and drawing it into the interior of its body.

To put the explanation of this simplest form of the action of feeding in a nutshell: at first the physical currents were haphazard in direction, the directions being those which happened to be the courses of least resistance at the time. Since, however, it was advantageous that the contractions of the neighbouring parts of the monad should be concerted and co-ordinated, the process of evolution caused the courses of the afferent physical currents to converge to the main local afferent course, and the courses of the efferent physical currents to diverge from the main local efferent course, in such a manner as to produce appropriate action.

That it is within the scope of evolution to produce this simplest form of the action of feeding without the help of intelligence will not be doubted by those who are acquainted with the numerous instances of so-called simulated intelligence in the vegetable world, in which concerted and co-ordinated actions are manifested.

In the sequel we shall show how the frequent unintelligent performance of such adapted actions gradually led to the evolution of intelligence. We shall find that both the acts of intelligence necessary to the performance of actions with conscious intelligence were evolved together. At the same time that the expectation of a future pleasure or pain arose in the mind, there arose also the expectation of an action by which it could be procured or avoided respectively. The same process that effected the evolution of the one, effected also simultaneously the evolution of the other.

CHAPTER VI.

MEMORY.

IN the chapter on "Sensation" we have seen that the simplest sensation possible necessarily implies the existence of the germ of memory, by which the past part of it is combined, or integrated with, the present part of it. Starting, therefore, with this germ of memory, we have to show how experience has gradually extended its scope farther and farther backward to preceding sensations, until the faculty which was originally confined within the limits of the present sensation became the memory of man which is able to look back many years into the past.

There are three things to be explained in the development of memory:—

(1) Why is a faint representation or idea of a past consciousness called up into present consciousness?

(2) Why is this representation taken as a representation of a similar, but more vivid, past consciousness?

In other words, why is not this representation which is a part of present consciousness regarded as a faint presentation, and why do we project it, as it were, into the past?

(3) How is it that we are able to estimate, more or less definitely, the time in the past at which this more vivid consciousness was presented?

The first stage in the development of memory is explained as follows:—

Let us suppose that a man is engaged in digging his garden, or ploughing a field. At intervals he observes the result of his work at its different stages. Let us further suppose that, after working for some hours, he stops to rest, and looks about him at the work he has done. In this way, the result of his work for several hours is presented to his mind in the form of a perception. Now, the different stages of his work have been associated with the different mental states which he experienced at these different stages respectively. For example, if we suppose that, when he was working in the near neighbourhood of some object, a tree, for instance, he was startled by some phenomenon which took place in his environment, the perception of the tree would call up a representation of this phenomenon. Thus, the perception of the result of his work would call up representations of his past mental states, in the manner explained in Chapter IV.

We now come to the second stage in the development of memory.

We have seen how representations are called up into the mind. We have now to explain why they are regarded by the mind as referring to the past; why, in fact, they are regarded as representations. They are parts of present consciousness. Why, therefore, are they not regarded as presentations* only? What is it which constitutes the difference between presentations and representations which makes us regard the latter as indicating that we have had pre-

* By *presentations* is meant those mental states which have no past or future implications. When representations were first produced, they were necessarily taken for faint presentations, since the distinction in kind between presentations and representations was (as we shall presently show) a result of experience. In Chapter IV. we have already pointed to the probability that much of what is regarded as intelligence in animals is due to the fact that representations are mistaken for perceptions.

sentations similar to them, but more vivid, in the past, while the former have no such implication?

We must first enquire how it is we are able to distinguish between presentations and representations. The most obvious distinction is that representations are extremely faint in comparison with presentations. But this difference is a difference of degree only, and therefore, were there no other difference between presentations and representations, representations would be regarded as faint presentations. It would seem, therefore, that there must be some more vital difference between these two things to cause us to regard them as different *kinds* of things, not merely different degrees of the same thing. There *is* a more vital difference, as we shall now proceed to explain.

Suppose that I 'am walking in the country, and that I am surrounded on all sides, for a distance of several hundred yards, by an open space in which there is no tree or shrub to hide objects from view. Let us further suppose that some association suddenly calls up into my mind the memory of a friend walking by my side, as, we will suppose, he has frequently done in the past. Let us further suppose, for the sake of argument, that this memory is as vivid as the actual perception of my friend would be. There is no doubt that such an experience would, in general, convince me, momentarily, that my friend was present. But suppose that, the instant before this memory was called up, I had looked all round me, and had thus absolutely convinced myself that there was then no one within sight. This would make it difficult for me to believe that my friend was actually by my side. There would not be time for him to come near to me from a distance of several hundred yards in that instant of time which may be regarded as the past part of present consciousness. Apart from the possibility of my having been mistaken in my observation, or of my

having been unconscious for a time, I should be compelled, either to believe that I was in the presence of the ghost of my friend, or to regard the event as an instance of a specially vivid memory.

I might, of course, convince myself that my friend was not present by applying the test of touch and other tests. But these tests depend *entirely* upon my perceptive faculty, and therefore cannot give the reason why representations were *originally* distinguished from presentations; for the existence of this faculty implies the previous existence of intelligence and memory, as will be shown in Chapter VIII. The first reason, on the other hand, does not depend *entirely* on the perceptive faculty. In other words, we shall find that it is possible to so simplify its statement as to make it express the reason why representations were *originally* distinguished from presentations. Before doing this, however, we shall consider another example. Let us take the case, considered at the beginning of the chapter, of a man digging in his garden. The perception of an object a little distance away may call up in his mind a representation of himself digging in its near neighbourhood. There are two reasons by which the man may distinguish this representation from a presentation. In the first place, it contradicts the more vivid presentation of himself digging in his present position. In the second place, there is not time enough in his present consciousness for the performance of the represented action by which the representation is separated from the presentation part of present consciousness—the action, namely, of digging the space which separates the object from his present position. Of these reasons the first is wholly inapplicable in an early stage in the development of consciousness, while the second, although in its present form it is too complex to represent the original reason why representations were distinguished from

presentations, can be so simplified as to be made to express this original reason.

We have found that representations of past perceptions are distinguished from presentations by being separated from the vivid part of present consciousness by the idea of an action for the performance of which present consciousness does not allow time enough. Now, we have only to simplify the statement of this reason to make it applicable to sensations as well as perceptions.

Let us suppose that a creature which is capable of experiencing sensation only has a representation of a past sensation called up into present sensation, together with the representation of the action (that is, in this case, the sequence of combined muscular and tactual sensations) by which it is separated from the present sensation. The representation of a sensation necessarily contains the representation of the time occupied by, or duration of, the sensation, this being an essential element in the sensation. Hence the duration of the intervening action is represented. But this represented duration is very much greater than the time occupied by the sequence of representations. This latter time is quite independent of the represented duration of the action, being dependent only on the rapidity with which the physical current travels along the nerves and in the brain. While, therefore, the sequence of representations takes place with such rapidity as to be comprised within the small time occupied by the present sensation, the represented time of the action is too great to be comprised within these limits. But by what faculty do we judge that the represented time of the action is greater than the time occupied by the sequence of representations? The faculty by which we do this is the simplest form of intelligence, the faculty by which we are conscious of the relations between the different elements of present consciousness. In the next chapter we

shall show that this simplest form of intelligence is independent of memory, except that germ of memory which is necessarily contained in the simplest sensation, by which the past parts of the sensation are combined with the present part to form the sensation. The integration of the various parts of the sensation gives the consciousness of the relations between these different parts.

Thus, let the representation (a, b, c) of an immediately past action (sequence of sensations A, B, C) be called up into the present sensation D. Then the sensation D contains the consciousness of the relations of sequence between a, b , and c ; thus, if the instant at which c is called up be termed the present part of the present sensation, b, a are in the past part of it. But the representation of the duration of the action is also in the present sensation, and this is seen to be much greater than the inconceivably short time in which a, b, c are called up. Therefore A, B, C are projected back into much more distant positions in the past than a, b, c respectively.

Thus memory is a particular case of the consciousness of the relations between the different elements of present consciousness, whereby some of them are regarded as representations of past consciousness, in order to make them compatible with the others. It is therefore a part of the meaning given to consciousness by experience.

Although the comparative faintness of representations is not the original reason why they are regarded as different in kind from presentations, yet, at a later stage in the development of consciousness, when intelligence had been developed in the manner shown in the next chapter, this faintness, since it is an almost invariable characteristic of representations, came to be regarded as itself alone an almost infallible sign of a representation.

It thus comes to pass that representations are frequently

projected back into the past—that is, are regarded as representing past mental states, even although they may not be accompanied by the representation of an action for the performance of which present consciousness does not afford time enough. For example, take the case previously considered of the representation of a friend being suddenly called up into my mind. If this representation were as faint as memories almost invariably are, I should regard it as a memory, even if I did not regard the actual meeting with my friend as an improbable event. In this case the faintness of the representation is the reason why it is not regarded as a presentation. But that this faintness is not the original reason why representations are not taken for presentations is proved by the fact that even if the representation of my friend were as vivid as a presentation, it would still be regarded as a memory, provided that, as in the case formerly considered, it should prove, if regarded as a presentation, incompatible with the presentation part of present consciousness. Thus the reason why faintness is taken as a sign of representation is because, representations having already been otherwise distinguished from presentations as being incompatible with them, it is a result of experience that representations are almost invariably faint, while presentations are almost invariably vivid.

We are now able to understand why the past consciousness remembered is believed to have been more vivid than its representation. Since presentations are almost invariably more vivid than representations, it is believed that the remembered consciousness, when it was a presentation, was more vivid than its present representation.

Not only man's own actions, but also the motions of any objects around him, if these motions be continuous and regular, will serve to place his past mental states in the proper order, and thus cause representations of them to

become memories. The motions of the heavenly bodies, especially of the sun, being nearly equable, and taking place within the observation of all, are peculiarly adapted to arrange the past mental states of man in their proper order. If our imagined man of extremely limited powers of memory were to observe, in the course of some hours, the position of the sun at different times, his past mental states would be placed in their proper order of sequence by the different positions of the sun with which they would be associated, the distances of the represented suns from the present position of the sun serving as symbols of the intervening sequences of past consciousness.

In the same way, observations of the results of work carried on for several days in succession would result in extending the scope of memory back from day to day, and ultimately from year to year. By this process, or, rather, by the observation of motions in general, the scope of memory has been gradually extended until it reaches back to the days of childhood. Further, by means of history it has been vicariously extended to the remote pasts of all nations, and by means of science, to the remotest past history of the earth and even of the solar system.

We have now to explain the third stage in the development of memory. At present we have only explained how we come to regard representations as representing past consciousness. We have still to explain how it is that we are able to estimate, often with great accuracy, the time in the past at which the past consciousness occurred. In other words, we have explained how we come to have, as it were, a map of past consciousness. We have still to explain how we learned the scale of our map.

In the first place, as already mentioned, a vague indication of the time occupied by a past sensation is contained in the representation of the sensation. The means of rendering

this vague notion accurate is afforded by experience. Time is divided into small portions practically equal to one another by the various constantly repeated movements of the body, breathing, walking a succession of steps, &c. We shall presently show how these actions come to be expected. Thus experience is constantly offering the opportunity of correcting our estimates of the time occupied by past sensations. Further, more extended experience enables us to estimate the time occupied by more complex actions, namely, actions compounded out of simple actions; for example, actions of walking composed of many steps.

With regard to the distant past, there is no doubt that our estimates would be very inaccurate, were it not that the motions of the earth about its axis and in its orbit round the sun serve to correct them. If a man were confined in an absolutely dark prison, so as to be unable to observe the succession of day and night, he would soon lose accurate count of time beyond the immediate past. The regular recurrence of day and night, and of the seasons, however, affords the means of accurately measuring past time for many years back. As soon as it was observed that these motions were regular, they were taken as measures of time, instead of the faintness of representations, which, if it were not for the regular recurrence of motions, we should be obliged to depend upon to place our memories of the distant past in order.

We have hitherto said nothing of the consciousness of self. In its simplest and earliest form memory did not contain any consciousness of self, as will be fully proved in Chapter IX. Indeed, since we shall see that the consciousness of self is constituted by the complete integration of all the parts of human consciousness, past and future, formed by memory and intelligence, it necessarily follows that it was developed later than these faculties. It is not

difficult to distinguish between that part of memory which is independent of the consciousness of self, and that part which is added to it by such consciousness. The simple memory of an event previously witnessed is expressed in the sentence "That event happened before," while to express the developed memory we must add the sentence, "The perception of that event was a part of that integrated system of consciousness denoted by 'self.'" This latter part of memory cannot possibly emerge into consciousness until past consciousness and present consciousness have been integrated into the whole which we express by the word "self."

We shall conclude this chapter with the explanation of a particular case of the complex memory exhibited by man. Suppose that, when walking in the country in the summer, I observe a tree of very unusual size and shape, and that I instantly recognize it as one that I have seen before. In Chapter IV. it has been shown that a single association of two objects or feelings in the past may be sufficient in the case of man, if the association is a striking one, to cause the presentation of one of them to call up a representation of the other. Now, when first observed, the tree produced strong feelings of interest. Representations of these feelings are, therefore, called up by my present perception of the tree. These representations are of the faint kind which indicate past feelings. Further, they are of the kind which have been integrated together in the manner explained in Chapter IX. to form the "self." They are therefore instantly recognized as belonging to myself. Hence I arrive at the belief expressed by the sentence "I have seen that tree before."

CHAPTER VII.

INTELLIGENCE.

THE word *Intelligence*, as ordinarily used, comprises three different kinds of consciousness:—(1) the consciousness of the various kinds of relations of unlikeness (including likeness) between the different elements of *present* consciousness; (2) the expectation of *future* consciousness (inferences regarding future events); and (3) inferences regarding the present and the past.

The first kind of intelligence is the simplest form of what is usually called *judgment*. In general, judgment involves all three kinds of intelligence; but the simplest kind of judgment is that in which the things whose relationships are judged are confined to the elements of present consciousness. It contains no reference either to the future or the past, nor any implication of the existence of the external world, that is, of any existence beyond consciousness.

Consciousness has been conceived under the metaphor of a "thread of thought"; but if this metaphor is adequately to represent consciousness, the thread must be regarded as made up of many strands combined together; for the consciousness of any moment is composed of many simultaneous elements; has, as it were, a certain area, sometimes relatively large, at other times relatively small, but always of composite nature. It is easy to understand why the consciousness of any

particular instant is of this complex character; for the principal nervous centre receives consciousness from many parts of the nervous system simultaneously, and therefore the consciousness at this centre must at any moment be compounded of many different varieties of consciousness. The production of these different varieties of consciousness is thus seen to be the effect of the process of differentiation by which the nervous system has been differentiated into different parts which are differently affected by the environment. It is also easy to understand why the consciousness at the principal nervous centre consists, not alone of the consciousness of the separate elements of which it is composed, but also of the consciousness of their relations to one another, for this is the effect of the integrating process of evolution, which, as we have already seen, is a process by which parts previously independent of one another are gradually combined into a whole consisting of mutually related parts. The development of this branch of intelligence has proceeded *pari passu* with that of the nervous system.

We must now turn to the consideration of the second kind of intelligence, the expectation of future consciousness.

With regard to this second kind of intelligence, there can be no doubt whatever that it is a part of the *meaning* which has been given to consciousness by experience. The primitive sensation was entirely devoid of any expectation regarding the future; for the experience of past sensations is a necessary condition for the evolution of expectations.

There are four things to be explained in the development of this second kind of intelligence. When I take an apple in my hand, with the intention of eating it, I have the expectation of experiencing a certain sweet sensation at a certain estimated time in the near future, on condition that I perform a certain action, the action, namely, of conveying the apple to my mouth and going through the

process of eating it. The first thing to be explained in this act of intelligence is—

(1) Why does the perception of the apple call up into my mind a faint resemblance or idea of the sweet sensation?

There is, however, much more than this in intelligence. Not only have I the idea or faint resemblance of a sweet sensation in my *present* consciousness, but, somehow or other, this idea makes me expect to realize a much more vivid sweet sensation in my future consciousness. I regard the idea as a faint adumbration of what I shall experience in the future. The second thing to be explained, therefore, is—

(2) Why does the idea of the sweet sensation make me expect a much more vivid sweet sensation in the future?

But there is yet more in intelligence. I am further able to estimate with considerable accuracy the time in the future when I shall experience the vivid sweet sensation. The third thing to be explained, therefore, is—

(3) How is it that I am able to estimate, more or less definitely, the time in the future when I shall experience the expected sensation?

But there is still more in intelligence. I believe that the expected sensation will come, on condition, and only on condition, that I perform a certain action, of which I have the idea in my present consciousness. The fourth thing to be explained, therefore, is—

(4) Why is my expectation of the vivid sweet sensation conditional on my performance of a certain action?

We now proceed to explain the first stage in the development of intelligence. In the chapter on "Action" we showed that the development of concerted and co-ordinated actions was initiated without the aid of intelligence. During the performance of any such action there would be produced at the centre of consciousness involved in the action, whether local or principal, a succession of sensations. Taking, as an

example, the action of an *Amœba* in feeding itself, the following sequence of sensations would be produced at the nervous centre—a tactual sensation, the sensations accompanying the movements of the pseudopodia, and, finally, the pleasurable sensations accompanying the process of assimilation. Further, these sensations having very frequently occurred in this order of sequence, it would come to pass that, in course of time, the occurrence of the first would call up representations of the others, in their proper order, in the manner explained in the chapter on “Representation.” And since thought is quicker than action, these representations would come to the mind before the sensations which they represented respectively. Therefore, in course of time, just as the monad is about to perform the first stage of the action in question (being unintelligently impelled thereto in the manner explained in the chapter on “Action”), representations of all the subsequent stages of the action would be called up in rapid succession, ending in the representation of the gratification which the action is adapted to procure ; in other words, an *idea* of the action and of the subsequent gratification would be called up into the monad’s present consciousness. This is the first stage in the development of intelligence.

We have now explained how it is that there arises in the mind of the monad, with the rapidity of thought, a sequence of ideas which is an adumbration of its future sensations. We have still to explain how it is that the monad comes to regard this sequence of ideas as an adumbration of its future sensations ; in other words, why it comes to expect that this very rapid sequence of faint ideas will be realized in the future—that is to say, will be followed in the future by a very much slower sequence of corresponding vivid sensations. Why should the idea of a pleasant sensation (that accompanying assimilation), which

is itself pleasant in a small degree, and which is called up into *present* consciousness, cause the monad to expect the much greater pleasure of its realization in *future* consciousness? Or, to return to human intelligence, why, when I reach out my hand to an apple with the intention of eating it, do I expect to experience in the future a sweet sensation similar to, but much more vivid than, the idea which the perception of the apple has called up in my mind?

The explanation of this stage in the development of intelligence is analogous to that of the corresponding stage in the case of memory.

The representation of the sweet taste is associated with a position of the apple and a position of my hand (the apple being held up to the mouth) which are not the present positions of the apple and hand respectively. Thus, one reason why the representation of the sweet taste is regarded as distinct in kind from presentations, is because to regard it as a presentation contradicts my present perception. As in the case of memory, however, it may be shown that this is not the original reason why representations were regarded as distinct in kind from presentations. This latter original reason is contained in the following statement:—Present consciousness does not last long enough for the performance of the represented action. And simplifying this statement so as to make it applicable to sensations, we arrive at the original reason for regarding representations as distinct in kind from presentations, which may be stated as follows:—The present sensation does not last long enough for the performance of the action (in this case, a sequence of combined muscular and tactual sensations) which is represented in it.

At first sight, it may seem that this explanation involves the assumption that the present sensation contains a germ

of this second kind of intelligence, or expectation. But this is not the case, as we shall now show. Let a, b, c be the represented sequence of sensations which constitute the action, d being the represented pleasure at the end of it. Then the sequence a, b, c, d comes into present sensation. Now the present sensation lasts for some time, and therefore contains a little of the past. Let us call the instant when d is called up the present part of the present sensation, then c, b, a are in the past part of it. The germ of memory necessarily contained in a sensation gives the relation of sequence between the past part and the present part of the sensation, and, therefore, also that between the present part and the past part. Thus the present part is seen to be in the future relation of sequence to the past part. Now, the represented duration of the action is seen to be much greater than the time taken in its representation, which is comprised within the present sensation. In other words, d is seen to be more distant from a in the future than its representation. Therefore both the action and the pleasure at the end of it are projected into the future, and the pleasure is expected.

Thus there is an expectation of future consciousness when there is the idea in present consciousness of an action leading to it. Let us take as an example the foretelling of the return of a comet. There is an idea in present consciousness of the revolution of the comet in its orbit round the sun. There is also in present consciousness a representation of the duration of this action, let us say seventy years. Thus the return of the comet, although its representation is a part of present consciousness, is represented as separated from the vivid part of present consciousness by an action which takes seventy years for its completion. Therefore the return of the comet cannot be a presentation. Further, the represented action is the representation of a sequence of consciousness of which the first term is the

vivid part of present consciousness. Therefore the representation of the return of the comet is taken to represent the future return after the expiration of seventy years—that is to say, the representation will be followed by the presentation after an interval of seventy years.

The reason why it is believed that the future consciousness expected will be more vivid than its present representation is the same as that of the corresponding belief in the case of memory.

The explanation of the third stage in the development of intelligence is identical with that of the corresponding stage in the development of memory.

We have now to explain the fourth and last stage in the development of intelligence. We have seen that, along with the idea of the expected sensation, there is an idea of an intervening action, the expected sensation being represented as immediately following the performance of this action. Further, experience proves that if this action is efficiently performed, the expected sensation will be experienced, but not otherwise. Thus arises the notion that the realization of the expectation is conditional on the performance of the represented action.

At first sight, it might seem beyond the capacity of the lower animals to reach to so complex a notion as that of conditional expectation; but we must bear in mind (and this remark applies to the whole of the preceding attempted explanation of the processes involved in consciousness) that any written explanation of the mental processes of animals must necessarily represent these processes in a very much more definite form than that which they actually take. All that is intended is that mental processes vaguely resembling those here definitely stated do actually take place in the minds of animals. That animals have some vague notion of conditional expectation seems to be sufficiently proved by

their actions. When, for example, food is thrown to fowls, if one observes that another is running after the same piece of food as itself, it will at once quicken its pace. Such an action seems to prove that some process passes in its mind vaguely corresponding to the definite sentence "If I don't look sharp, I shall lose it."

We now come to the third kind of intelligence, namely, that which refers to the present and past as well as to the future. It is that kind of intelligence by which we make inferences with respect to the present and the past as well as to the future, and with regard to the future generally, whereas the second kind of intelligence refers only to a particular time in the future. When I perceive a brick, not only do I expect, if I walk up to it and touch it, to obtain tactual sensation from it, but I infer that these sensations might have been obtained from it at any time in the past, or might be obtained at any time in the future (within limits) by performing these actions. In other words, I infer that the brick *is* a hard object. We shall treat of these inferences in the chapter on "Perception," where it will be shown that this third kind of intelligence is produced by a combination of intelligence proper and memory.

We shall conclude this chapter with a consideration of the different kinds of adapted actions manifested in animal life. They are as follows:—

(1) Adapted actions in which the only kind of consciousness manifested is sensation. Of these we have spoken sufficiently in Chapter V.

(2) Adapted actions in which the only kinds of consciousness manifested are sensation and representation.

It is probable that intelligence is often attributed to animals, when the only kind of consciousness manifested other than sensation is representation. For example, suppose that an animal which is one of those which serve as

the prey of the lion, knows how to act when it sees the lion; then, on hearing the roar of the lion (supposed out of sight), a representation of the lion would be called up. If we, therefore, further suppose that this representation is mistaken for a presentation, it is obvious that the animal would at once take to flight. In this case there would be no manifestation of intelligence, but only of representation. It is probable that, at least in the lower forms of animal life, adapted actions are frequently produced in this way, that is, by representation, not by intelligence.*

(3) Adapted actions in which intelligence is manifested.

These last may be divided into two classes:—(α) those in which the end or purpose of the whole action is present in consciousness; and (β) those in which the end or purpose of each part of the action only comes into consciousness successively. The latter class comprise those actions of animals which manifest what is called instinctive intelligence, such as many actions connected with reproduction, and the web-spinning of the spider. In these cases the complexity of the actions has increased faster than intelligence, so that the latter has never been able to overtake them, as it were. The simple steps of which each action is composed are intelligently performed; but the action, as a whole, is unintelligently performed. Just as a performing dog may be trained to perform actions which seem to indicate a much greater degree of intelligence than it possesses, so animals have been trained by the process of Evolution to acquire habits of acting which seem to indicate a much greater degree of intelligence than they actually possess.

* Similarly, it is probable that memory is often attributed to animals when only representation is manifested. If a dog *appears* to recognize its master after an absence of ten years, this does not prove that it really remembers him. It only proves that the dog has a representation of the pleasures which were associated with him in the past and expectations of the like pleasures in the future.

CHAPTER VIII.

PERCEPTION.

PERCEPTION being a very complex kind of consciousness, it will be well to devote the first part of this chapter to an enquiry into its nature. In the latter part of the chapter we shall endeavour to trace its development.

In the chapter on "Sensation" we saw that visual perception is compounded of sensation and meaning. We shall first consider the *sensation* part of visual perception.

The sensation part of visual perception consists of two parts, the presented sensation and the represented sensation. The presented sensation is the sensation which the object itself produces *directly*, and the represented sensation consists of those representations or ideas of past sensations which the presented sensation calls up into the mind *indirectly* by means of the faculty of representation. Visual, muscular, and tactual sensations have been so frequently associated together in close sequence in the past that it has come to pass that the visual sensation calls up representations of muscular and tactual sensations, the kind of sensations called up being the kind which experience has associated with the particular kind of visual sensation presented. For example, the visual sensation produced directly by an object within reach of the hands has been frequently followed in the past by the muscular sensations accompanying the action of reaching out the hand, and these again by the combined tactual

and muscular sensations which accompany the action of passing the hand over the object. Therefore it has come to pass that the presented visual sensation calls up representations or ideas of these sequent sensations. Thus the sensation part of a perception consists of a group of presented and represented sensations.

We shall next consider the *meaning* part of our visual perceptions.

We have only to analyse any of our perceptions, and we shall find that the meaning part of them consists of a number of inferences. We infer a number of things about the object from the presented and represented sensations which it gives us.

Consider my perception of a particular object (say a blade of grass on the ground close beside me). From the sensation which it gives me both directly and indirectly, by calling up representations of tactual sensations, I infer—

- (1) That there is something independent of myself.
- (2) That this something existed in the past and will exist in the future.
- (3) That it is a certain distance from me in a certain direction.
- (4) That it is of a certain size, shape, colour, smoothness or roughness.

Again, consider my perception of a field of grass too distant for the separate blades to be distinguished. I infer that the perception is caused by a number of blades of grass.

Or, again, consider the perception of a cow grazing on the grass. I infer that the side of the cow perceived is more or less convex or concave respectively in the different parts of it.

It appears, therefore, that perception is a special kind of intelligence. It is the name given to those inferences which relate to the attributes which all bodies possess,

permanence, independence of self, position, size, shape, colour. It is because they have been so frequently made in the past that they are now made automatically—that is, without sensible effort. Perception may, therefore, be called automatic intelligence.

There is no memory in perception, as there is in inferences which are consciously made. When I perceive that the orange that I am looking at is a round object, I do not necessarily remember the occasions in the past when I have handled oranges, or other round objects. A representation of the roundness is called up into the mind, not a memory of it.

Objects suggest to the mind many inferences which do not belong to perception. We have previously instanced the inferences suggested to the mind of a botanist by the perception of a plant. Again, my view of a landscape may suggest many inferences which are not a part of my perception of the landscape. For example, I may perceive that smoke is rising from a chimney of a house, and may infer that the house is inhabited. Or I may infer from the appearance which a house presents that it is new and unfinished, and therefore not inhabited at present, but that it soon will be inhabited. Or again, from its dilapidated appearance I may infer that a house is not now inhabited, but that it has been inhabited in the past.

The distinction between such inferences as these and those which belong to perception consists in this, that while in the former we are conscious of both the process of inference and its result, in the latter we are conscious only of the result of inference, the process having been so frequently performed as to be effected without the aid of any guiding consciousness.

Thus perception is the name given to that automatic kind of intelligence which deals with the universal attributes

of bodies. We do not say that we *infer* that the ball that we are looking at is round. We say that we *perceive* it to be round. But the perception is an inference, none the less. It is an inference that has been so frequently made in the past experiences of animal life that it is now made automatically, without any sensible mental effort.

Nevertheless it is difficult to draw a hard and fast line between perception and ordinary intelligence. When an object is so distant that it is difficult to make out what it is, any decision which may finally be arrived at would be more properly described as an act of intelligence than as one of perception. In such cases we consciously infer rather than perceive. And yet, if the distance were less, we should say that we perceive that the object is such or such.

It therefore appears that the meaning in our perceptions always takes the form of inferences. A perception is not a mere bundle of presented and represented sensations. The group of presented and represented sensations, somehow or other, makes us infer a number of things about the object. What is the nature of these inferences?

Suppose that I am looking at a cube, which is in such a position that I can see three of its faces (say A, B, C) simultaneously. The *meaning* in perception (what the perception tells me) is this, that I can realize in the near future the represented tactual sensations by going through certain movements; and, further, that I can realize them at any time in the future (within limits), and could have realized them at any time in the past (within limits), on the performance of these movements. In other words, the realization of the represented tactual sensations is separated from present sensation by intervening sequences of muscular sensations, the intervening sequences being different for the tactual sensations which can be obtained from A, B, and C respectively, since the hand must be moved in

different ways in order to obtain their different tactual sensations. Thus the meaning part of perception is the consciousness of the relations between the presented and represented sensations which constitute its sensation part. The distance of the object from the eyes is the consciousness of the relations between the presented and represented sensations, and the form or shape of the object is the consciousness of the relations between the represented tactual sensations themselves. The former relation is always expressed by a sequence of muscular sensations. The latter relations are, for reasons which will presently appear, relations of co-existence.

Having now arrived at the notion of what a visual perception is, we shall next proceed to show how it has been developed.

The development of visual perception may be divided into three stages:—

In the first stage, the visual perception of an object consists of the idea of a co-existing group of tactual sensations terminating the idea of an action (that is, a sequence of muscular sensations).

The perception of an object is, however, very much more than this. Intelligence makes me expect that my ideas will be realized in the near future. Not only have I the idea of a group of co-existing tactual sensations terminating the idea of an action (sequence of muscular sensations), but I believe that these ideas can be realized in the future. I believe that by performing the represented action I can realize in the future the represented group of tactual sensations. I regard the ideas as faint adumbrations of what I can more vividly experience in the future. Further, memory gives permanence to the idea of the group of tactual sensations; so long as the object is looked at, the idea remains, and memory integrates the past idea with

the present idea; and as the idea acquires permanency, so also does the expectation of its realization. Not only do I believe that my ideas can be realized in the immediate future, but I further believe that it is possible at any time in the future, and that it was possible at any time in the past, to realize the represented tactual sensations by performing the represented action. In other words, I believe that there is a permanent possibility of experiencing the represented group of co-existing tactual sensations. We shall call this the second stage in the development of perception. There is still more, however, in my perception. I believe that there is something independent of myself, something which exists independently of my existence, which is the cause of my perception. This is the third and final stage in the development of perception. The three stages may be stated concisely thus:—

(1) The object produces an *idea* of a group of co-existing tactual sensations terminating the *idea* of an action.

(2) These *ideas* produce the belief that they can be realized in the future, and the further belief that they are realizable at any time.

(3) It is believed that there is something independent of the “self” which is the cause of the perception.

We shall now endeavour to trace the development of these three stages of perception. We shall first trace the development of visual perception from tactual perception, and then show how tactual perception was developed.

Suppose that I am looking at an object a little distance away. The waves of ethereal vibrations (which we call “light”) which come from the object to my eyes produce in the optic nerves waves of molecular motion, which pass along the nerves to the brain, producing the effect of sensation on the monads as they pass along. The result is that the principal monad receives a large number of units of sensation.

This is the visual sensation produced by the object itself, apart from its effect in calling up representations of past sensations.* It is, of course, quite devoid of meaning. Now, ever since the eyes were first evolved, visual sensations have been associated with the tactual sensations produced in us by objects and with muscular sensations (that is, sensations accompanying movements). It has been a very frequently recurring experience that a visual sensation has been followed by a sequence of muscular sensations (the sensations accompanying the act of walking up to the object and reaching out the hand to it), and that these latter have been immediately followed by the combined tactual and muscular sensations obtained by passing the hand over the object. If the visual sensation comes from an object which is not directly in front of me, then experience has shown that the combined tactual and muscular sensations obtained by passing the hand over the object will not follow unless, but will follow if, the preceding muscular sensations include those which accompany a certain turning movement. These sequences having been very frequently experienced, the faculty of representation causes the visual sensation to call up, with the rapidity of thought, representations or ideas of the sequent sensations. In the case of man, the sequences form long series, but when sight was first evolved the series would be very short. As sight has gradually improved, the representations have become, step by step, more complex. Further, so numerous have been the experiences of objects in the past (numerous for each particular kind of experiences), that it has come to pass that every kind of visual sensation calls up representations of the proper system of tactual sensations and the proper sequence of muscular sensations which correspond to it. Now let us suppose that the object is a cube so placed that three of its faces are in view. Each of these faces produces its particular

* That is, past sensations in the experience of the race.

kind of visual sensation. Therefore the total visual sensation calls up representations of three different kinds of combined tactual and muscular sensation, each following a particular sequence of represented muscular sensations. Further, these representations of three different kinds of combined tactual and muscular sensations are called up simultaneously; for, since they have been experienced * with equal frequency in all orders of succession (sometimes one first and sometimes another), it follows that they are called up into the mind simultaneously, not in sequence, and therefore that they are represented not as sequences, but as co-existences.

Now, the muscular sensations which accompany the tactual sensations obtained by passing the hand over a face of the cube are different according to the different directions in which the hand is passed over the face. But since, in actual experience of objects in general, the hand has been passed over the face with equal frequency in any two opposite directions, it follows that, in representation, the muscular sensations are eliminated, and there results the idea or representation of tactual sensations only.

Thus the first stage in the development of visual perception is the idea of a continuous group of co-existing tactual sensations terminating the idea of a sequence of muscular sensations.

Now, in the chapter on "Intelligence" we have shown how these ideas came to be representative of corresponding, but more vivid, sensations expected in the future. The idea of the action came to be representative of a real action which can be performed, and the idea of the group of tactual sensations came to be representative of a group of real tactual sensations which would be experienced after the completion of the action.

Further, memory adds permanence to the perception. As

* That is, taking our experience of objects *in general*.

long as the position of the eyes remains unchanged, the perception persists. Further, although the perception would disappear if the eyes were turned in another direction, it would re-appear if the eyes were again directed as before. Hence would arise the belief (that is, the expectation) that the idea of the group of co-existing tactual sensations can be realized at any time in the future (within limits) and could have been realized at any time in the past (within limits) on the performance of a certain represented action. This is the second stage in the development of perception.

Before explaining the third stage in the development of perception, we shall consider the development of tactual perception. In order to do this, we shall suppose, for the sake of argument, that a man is entirely devoid of the perceptive faculty, being capable only of receiving sensations, and we shall further suppose that he continually passes a finger backwards and forwards between two rough points situated on a smooth plane surface. This supposition is, of course, more favourable for the evolution of perception than any actual experience; but, on the other hand, actual experience furnishes countless less favourable experiences of the same *kind* as our hypothetical one. On this supposition, the man would receive two different sensations (say A and B) succeeding one another repeatedly, separated by two inverse motions respectively (sequences of muscular sensations). The frequent repetition of the sequence of sensations thus furnished would produce, in the manner explained in previous chapters, first, the representation, and later the memory and expectation of them. Finally, the integration of A with the memories and expectations of A would produce the tactual perception of the object A as a permanent existence,* and a similar process would take place with regard to B. Thus A and B would be two per-

* Not, of course, as an existence beyond consciousness.

manent co-existing objects (points), the relation of A to B being expressed by a sequence of muscular sensations, and that of B to A by the same sequence in an inverse order. The perception of a line is compounded of the perception of points and of their relations to one another, and the perception of a surface (*e.g.*, the face of a cube) is compounded of the perception of lines and their relations to one another. For example, the relations between two adjacent edges of a cube are expressed by the turning movements made by the finger in passing from one to the other. Thus the development of the tactual perception which was assumed in our account of the development of visual perception is now explained.

In Chapter IX. we shall show that the consciousness of self was not developed until after perceptions had been developed; in other words, that Object emerged into consciousness before Subject. We shall further show that the consciousness of self was developed by its association with the particular object which constitutes the body of the organism, and hence the "self" came to be regarded as something existing within the body. Hence all other objects, being outside the body, came to be regarded as outside "self." Further, in the most advanced stage in the development of "self," the perception was seen to belong to the "self," this being the final step in the complete integration of the consciousness of self; and then an object came to be the unknown cause of the perception. This was the third and final stage in the development of perception.

The visual perception produced by an object varies very greatly according to its distance from the observer; but experience has shown that the quantity of tactual sensation to be obtained from the object* is the same for all these

* The object is supposed to be one of those which remain sensibly the same for a considerable period of time.

different perceptions of it, and hence it has come to pass that we are able (within limits) to estimate the distance of the object, and to allow for its effect on the magnitude of the perception; in other words, to distinguish between the effects produced by the magnitude and distance of the object respectively, so that the perception of an object of the kind we are considering comes to stand for a constant quantity of tactual sensation.

The fact that objects in general remain sensibly the same for long periods of time has doubtless much accelerated the process of integration of sensations by which perceptions have been generated; but this process would have taken place, although doubtless more slowly, even if all objects were subject to rapid change, provided the change took place *continuously*; for we have examples of the integration of rapidly changing sensations into objects in clouds and waves. The only necessary condition for the production of this process of integration of sensations into perceptions is that the change of the sensation should be a *continuous* change. When we recognize an object—that is, when we identify an object with one formerly seen—we do this because, and only because, we believe that it was possible for us at all intervening times to obtain either the same quantity of tactual perception or else a continuously varying quantity, starting from that indicated by the former perception and proceeding to that indicated by the latter.

CHAPTER IX.

SELF.

THERE are two senses in which the word "self" is used. It is sometimes used to signify the unknowable substance of mind of which the different kinds of consciousness are regarded as affections or modifications. In this sense it is sometimes distinguished as the *noumenal self*. And it is sometimes used to denote the integrated system of consciousness manifested at the principal nervous centre of a man or of an animal. In this sense it is sometimes distinguished as the *phenomenal self*. It is only in the latter sense of the word that we can be conscious of self, and, therefore, it is only with this sense of the word that we are concerned in tracing the evolution of consciousness. Thus by the consciousness of self we mean the consciousness that all the different kinds of our consciousness are mutually related (integrated) parts of one whole, the self.

The consciousness of self was gradually evolved, and the process of integration by which it was evolved was analogous to that by which the bodily individuality of animals was produced. The bodily individuality of an animal has been produced by the integration of the actions of the monads of which it is constituted. When this process of integration has taken place to such a degree that the monads act, not independently, but in relation to one another, the animal becomes an individual; but this bodily individuality is not produced

until the process of integration has gone so far as to unify the animal—that is to say, to make the animal act as one being. A sponge is not regarded as an individual, because, although there is a certain amount of integration of the actions of the different animals of which it is composed, yet, in the main, these animals act independently of one another. On the other hand, in the case of the higher animals, the constituent living cells are so integrated together as to have lost their independent action, their separate individuality being merged in that of the organism as a whole. Similarly, the mental individuality or oneness of an animal was not evolved until the different parts of the animal's consciousness were integrated into one whole by memory and intelligence. Thus, although there must have been some degree of integration in the earliest stages in the evolution of consciousness, constituting a germ of the consciousness of self, yet it does not follow that there was anything which could properly be called consciousness of self in these early stages. There was merely the beginning of the process of integration by which the consciousness of self was ultimately produced.

Starting with sensation, and, therefore, with the germ of the consciousness of self above-mentioned, by which the different parts of the sensation were integrated or combined together, we have now to trace the development of the consciousness of self from this germ to that which is manifested by man. In other words, we have to show how the integration of the different kinds of consciousness into one whole was effected.

We have shown how present sensation gradually came to be combined with memories* of past sensations and with expectations of future sensations, and we have further shown how, by a combination of memory with intelligence, expecta-

* We shall presently show that memory and intelligence preceded "self" in the evolution of consciousness.

tions were converted into inferences. Finally, in the last chapter we showed how groups of sensations and inferences were combined or integrated into perceptions. But the process of integration did not end here. The various perceptions, memories, inferences and desires, &c., which go to make up human consciousness were gradually integrated together into one great whole, constituting "self." The minor integrations which constitute perceptions were merely constituent elements of this great integration. We have now to enquire how this integration was effected. We know that human consciousness comprises very different elements. For example, the intellectual and emotional elements of consciousness are extremely unlike one another. They cannot, therefore, have been associated together, in general, by the bond of likeness. Like kinds of consciousness would be associated together by this link; but we must look elsewhere for the link of association by which the various unlike elements of consciousness were integrated into one great whole. The only possible way in which such unlike kinds of consciousness as feelings of hunger, or anger, or pain, and inferences, or as desires and perceptions, can have been linked together, is by their association with the movements of the body.

Thus we infer that object emerged into consciousness before subject. At first "self" was a particular object, the body of the organism. This particular object became differentiated from all others by its association with tactual and muscular sensations. The primitive *ego* was the sentient object. In course of time all the higher forms of consciousness came to be associated with this sentient object. Later, the body came to be classed with other objects, and "self," therefore, becoming dissociated from it, came to stand for the integrated system of human consciousness alone. Finally, when man had advanced to be something of a philosopher, there was added to his conception of "self" that part of per-

ception which he had previously erroneously supposed to belong to the object, and the object came to be regarded as the unknown cause of the perception. When this was done the differentiation of subject from object was complete.

That object emerged into consciousness before subject is otherwise evident; for, in the first place, the integration which forms a perception is much less complex than that which forms the consciousness of self, being merely a minor integration which forms a single constituent element of the latter great integration; and, in the second place, the sensations which go to form perceptions being, in general, much more vivid, much more definite, and much more frequently associated together in experience, than others, are necessarily the first to be integrated together. For all these reasons, object would necessarily rise into consciousness before subject.

That memory and intelligence preceded the consciousness of self in the evolution of consciousness is proved as follows:—

Let present consciousness consist of the present sensation p , memories of past sensations $a, b, c \dots$, and expectations of future sensations a', b', c', \dots ; then, the integration of $p, a, b, c \dots a', b', c', \dots$ into one connected system of consciousness constitutes the "self." * Now, since it is an effect of the process of evolution to make consciousness more and more complex, it follows that, as we go back, in thought, further and further into the past, the number of memories and expectations comprised in present consciousness becomes less and less, and therefore present consciousness tends more and more to approach the condition in which only one memory, or only one expectation, as the case may be, is combined

* Or rather, constitutes the representation or symbol of "self." "Self" is the whole system of past, present and future consciousness, of which that part which is represented in present consciousness is known to be only a very small part.

with the present sensation. Whence it follows that as consciousness becomes more and more simple, the consciousness of self tends more and more to become identical with memory or intelligence. In other words, the consciousness of self was not then differentiated from memory and intelligence.

It is true that a sensation itself comprises a germ of the consciousness of self; but the above reasoning proves that the evolution of what we may call memory and intelligence of the *higher order* (that is, memory and intelligence which connect sensations together) precedes the evolution of the consciousness of self of this higher order. And in the same way it can be shown that memory and intelligence of the lower order precede the consciousness of self of this order in the evolution of consciousness.

Thus the consciousness of self is developed from sensation and representation. At first sight it might seem that each of these two kinds of consciousness necessarily implies the previous existence of the other; for it might be urged that while, on the one hand, sensation must necessarily contain representation (since, otherwise, it could not last for any time), on the other hand, representation must necessarily be the representation of a past sensation. The former statement is undoubtedly true; but the latter is not necessarily true; for, while it is true that a representation must be the representation of *something*, it does not necessarily follow that this something is a sensation. It may be, and originally it must have been, the representation of something of the same *kind* as a sensation, but of simpler constitution. We shall call this the *psychical germ*. This psychical germ was neither sensation, memory, intelligence nor consciousness of self, but something simpler than any of these, out of which they have all been developed. Experience of this simplest kind of consciousness produced representation of the immediately past psychical germ in the present psychical

germ, by which process the germs of memory and intelligence were constituted. The primitive sensation was then produced by the integration of the present psychical germ with these germs of memory and intelligence. Finally, the same process taking place with sensations, representations of past sensations and then memories and expectations, perceptions and self-consciousness, were successively evolved.

The above reasoning with respect to the nature of the phenomenal self holds, whatever view we hold regarding the nature of the noumenal self or *Ego*. It is commonly supposed that the *ego* is a single (that is to say, indivisible) entity which constitutes the conscious mind, or person, or man himself, whichever term we may prefer to adopt. But this theory is beset with very great difficulties; for it can be readily shown that the mind of man (1) is not single, and (2) does not constitute the *person*.

(1) The phenomena of reproduction prove that the substance of mind is contained in the monads of which the body is composed, since, otherwise, the mind of a child could not be derived from the minds of its parents. Similarly, it may be shown that the substance of mind is distributed over all the different parts of a simple free-living monad; for a new monad is produced by the mere separation of any portion of the monad from the rest of the animal. Further, theoretically the process of evolution is adequate to produce from a single monad all the different kinds of animals* which constitute the animal kingdom. Therefore the process of growth by nutrition alone (for reproduction is a particular case of this process) is adequate to produce all these different conscious entities from a single monad. But growth by nutrition is ultimately reducible to growth by the assimilation of inorganic matter, whence it neces-

* To meet a possible objection, we shall suppose man excluded.

sarily follows that the substance of mind must either be the same as that of matter, or else must be composed of units which are associated, in some way, with the atoms of matter. Therefore the substance of mind, like that of matter, must be (practically) infinitely divisible. Therefore, if animals possess a conscious entity, this entity must be, not single, but compounded of parts. Now, if it be argued that the fact that there is no single conscious entity in animals does not prove that there is no such entity in man, let us suppose that man has, somehow or other, become possessed of such an entity, in addition to the animal mind which he has derived from the animals. There are two fatal objections to this supposition. In the first place, it would be impossible for children to derive this non-animal mind from their parents, and for the parents, at the same time, to retain it themselves. And, in the second place, this supposed entity cannot be the subject of that kind of consciousness which the animals possess in common with us; for such consciousness is undoubtedly derived from the animals. Whence it would follow that the supposed conscious entity is the subject of only a small part of human consciousness, religious and æsthetic consciousness and deductive reasoning. But this is impossible. If there is a conscious entity in man, that entity must be the subject of the whole of his consciousness. Therefore it is impossible to suppose that there is a conscious entity in man distinct from the animal mind. Therefore the conscious entity in man as well as in animals is not single.

(2) The substance of mind is impersonal. The difference, for example, between a man and a horse is constituted, not by any difference in the substance of mind in the one and in the other, but by the different experiences through which the monad community has passed in the course of its development into the one or the other

animal respectively. Whence it follows that what constitutes the person is, not the substance of mind, but the manner in which its constituent units are integrated together into one harmonious whole, an integration which has been produced by the experience (ancestral and individual) of the animal during the course of its development.

Again, what is it that constitutes the person John Smith? It is not any difference between the substance of his mind and that of Henry Jones that constitutes the difference between these two persons. This difference is constituted by the difference in the integration of the entities (material and mental) of which they are composed, produced by the different experiences (ancestral and individual) of the two monad communities in the course of their development. All the entities of which John Smith is composed existed before he was born, and will survive him after death. Therefore the person John Smith was *gradually* created by the process of evolution by which these entities were differentiated and integrated, his bodily individuality being constituted by the integration of the material entities, and his mental individuality by the integration of the mental entities.

Further, the personal identity of man is explained by those who hold that "self" is the substance of mind as the identity of this substance in the different phases of its existence. But it is manifest, from what we have already seen of the nature of this substance, that it does not remain identical with itself in the different phases of its existence. Like the matter with which it is associated, it is in a constant state of flux. And this is equally true of the mind of the monad as of that of man.

It appears, therefore, that the substance of mind possesses none of the attributes which belong to "self." It has neither unity, personality, nor identity. We are driven,

therefore, to consider the only alternative theory open to us, namely, the theory that there is no single conscious entity or *ego*.

Our theory that "self" is an integration of consciousness affords a satisfactory explanation of the unity, identity, and personality of "self." We have already proved this in the case of personality. The unity of "self" is explained as the "oneness" of present consciousness, all the parts being integrated together (made one) into one whole of mutually related parts. The identity of "self" in the different phases of its existence is explained as the "oneness" of past, present and future consciousness, all these parts being integrated into one continuous system or whole of mutually related parts by memory and intelligence.

If it be urged against this view of the nature of mental identity that the interest which every man feels in his future self cannot be reconciled with it, it is replied that interest in one's future self no more points to the identity of the present and future self than interest in the welfare of one's friend points to the identity of the friend with oneself. In both cases the interest is caused by an integration of consciousness. As, in the latter case, sympathy with one's friend is the feeling evoked by the knowledge of him produced by intimacy with him, so, in the former case, sympathy with one's future self is the feeling evoked by the knowledge of that future self given by intelligence. Thus, while from one point of view unselfishness may be regarded as a new development of selfishness produced by social evolution, selfishness may, from another point of view, be regarded as a development of unselfishness produced by the evolution of the monad community. In an early stage of the evolution of intelligence, a man's future self may be said to be a stranger to him; but, in the course of evolution, this stranger becomes a friend, and the desire to

benefit this friend becomes henceforth an important factor in the determination of action.

We have seen that, anterior to the development of "self," the field of consciousness was occupied by a number of objects together with certain presented and represented sensations, and that when "self" was developed, it was developed in association with the particular object, the body. It was therefore regarded as existing somewhere within the body, in the brain, in fact. Therefore, since, in relation to an entity supposed to exist within the body, all other objects, being outside the body, are external, all objects, including the body, were necessarily regarded as outside "self." Hence arose the belief in the existence of the external world. We have still, however, to enquire into the validity of this belief; for apart from such enquiry there would be nothing to show that it is not an illusion due to the fact that Object was evolved before Subject. In other words, we have not only to explain, as we have just now done, why perceptions contain an implication of the existence of something outside "self," but we have to enquire into the validity of that implication.

A single sensation could not possibly contain any implication of an existence beyond consciousness, but an experience consisting of millions of sensations may give rise to a valid belief in existence beyond consciousness; for we have shown in the chapter on "Intelligence" that experience produces, firstly, expectations, and secondly, inferences, these mental states being the consciousness of the *relations between sensations*. We shall now endeavour to show that belief in existence beyond consciousness is a valid inference arising from the relations between the sensations furnished by experience. In other words, it is a particular case of the *meaning* which experience adds to our sensations.

The faint mental states (representations, memories, expecta-

tions, conceptions, and imaginations) always have their causes in consciousness. In other words, they always come into consciousness as the consequents of immediately antecedent mental states in accordance with the laws of association. The vivid mental states (perceptions), on the contrary, always (except when they have been so frequently presented in the past as to be expected) come into consciousness unconnected with antecedent mental states. In other words, it is impossible to find the causes of these vivid states in consciousness. For example, if I blunder against an object in the dark, the painful feelings which I experience are not connected with immediately preceding mental states by the relation of cause and effect. Hence the mind is compelled to believe that their causes exist outside or beyond consciousness.

Further, even idealists admit the validity of our belief in the existence of other minds (that is, other systems of consciousness) similar to our own. This belief is an example of the ordinary effect of association by which we have shown that inferences, in general, are produced. The similarity of my perception of other men's bodies and their movements to my perception of my own body and its movements causes me to infer the existence of other minds similar to my own associated with those other bodies and their movements, in the same way that my mind is associated with my body and its movements. Now, these inferred minds (systems of consciousness) must exist outside my consciousness, for a consciousness inferred is not a consciousness actually experienced; for example, if I see a man manifesting signs of intense suffering, the pain which I infer he is suffering is not actually felt by me, and, therefore, is outside my consciousness. Hence we infer the existence of other systems of consciousness outside our own consciousness.

Now suppose that I show to another person an object (one,

let us say, that I have just this moment taken from my pocket). I infer from this other person's behaviour that he also has a perception similar to that which the object gives me. But if my perception of this object is only an idea in my mind—that is to say, is only a part of my consciousness—how is it that a similar idea enters simultaneously into his consciousness? Or, again, let us suppose that, instead of showing the object to one person only, I show it to many simultaneously. Here we have given a large number of independent systems of consciousness, and I find that the occurrence of an idea in my particular system of consciousness causes the simultaneous occurrence of similar ideas in all the other systems of consciousness. The simplest way of accounting for such a phenomenon is to suppose that a single cause exists outside consciousness which produces the idea in all the systems of consciousness. This is the expectation or belief produced by experiences of this kind.

Thus, as the consciousness of the relations between our sensations produces the inferences which belong to our perceptions, so the consciousness of the relations between our perceptions would produce the inference that the latter are the effects upon our minds of existences outside consciousness, even if this belief were not already otherwise generated.

CHAPTER X.

CONCEPTION AND IMAGINATION.

WE have seen that a perception is an integration of sensations, partly presented and partly represented. In general, especially in visual perceptions, the represented sensations form the main portion of the perception. The conception of an object differs from the perception of it in being entirely composed of representations of past sensations. A conception is formed, however, in precisely the same way as a perception. For example, the frequently experienced sequence of the blossoming and fruiting of trees may cause the perception of a tree in blossom to call up into the mind the representation of the fruit. The conception is, however, necessarily vague in size and shape, because the past perceptions of the fruit, which have generated the conception, have differed somewhat both in shape and size. The size and shape of the conceived fruit are not those of any particular fruit perceived in the past. The conception is formed by the combination of many representations of different sizes and shapes. Consider, for example, the conception of an orange. Oranges of the size and shape most frequently or most recently perceived in the past produce the most vivid part of the conception. Others produce only faint representations. Hence the vagueness of the size and shape of the conception. Nevertheless, the most vivid part of the conception *has* both size and shape, namely, a kind of mean of the size and shape

of the oranges perceived in the past. This mean, however, is not the arithmetical mean, since oranges recently perceived will have more effect in determining the size and shape of the conception than more remote perceptions. Thus, as compared with perceptions, conceptions are vague or indefinite in character, as well as faint in intensity.

The difference between a conception and a perception just stated is, however, a difference of degree only, not a difference of kind ; for, in our account of perception, we saw that the representative part of perceptions has been produced by past perceptions of similar objects, whence it follows that a perception, no less than a conception, consists, in respect of its representative part, of the combination of the representations of similar objects perceived in the past. Therefore the size and shape of a perception, like those of a conception, are a kind of mean of those of objects perceived in the past, the only difference being that, in the case of perception, the representations called up into the mind are those which have been associated in the past with similar presentative parts (that is, the sensations caused directly by the objects), while, in the case of conception, there is, of course, no presentative part to thus confine the representations of size and shape within very narrow limits.

For example, my past perceptions of oranges all contribute, more or less, to the formation of my present perception of a particular orange, as they also contribute to the formation of my conception of an orange ; but, in the case of the perception, only those oranges perceived in the past which produced nearly the same presented sensation as that now perceived contribute sensibly to the perception, since it is these which have been associated in the past with presented sensations most nearly resembling that produced by the orange now perceived.

It follows from the above reasoning that what we take for

the size and shape of an object are not really the size and shape of that object, but are products of the sizes and shapes respectively of objects perceived in the past, or, to speak accurately, of the supposed sizes and shapes of these objects, the products being evolved by the process explained above. In other words, the perception of the size and shape of an object is really a very skilful *guess* of its size and shape.

Thus the process which has generated conception is identical with that which has generated perceptions, namely, the process of representation in accordance with the laws of association.

From this account of the nature of conception it follows that animals must have conceptions as well as perceptions; for the same process of representation of past perceptions which produces the latter produces also the former. In fact, a perception is a conception plus a presentative element, which, while on the one hand it renders the perception vivid, on the other hand it confines within narrow limits the generality or vagueness of its representative elements. To take an example: when a saucer of milk is held out to a cat in such a position that the cat is unable to see the milk, a conception of the milk must necessarily be produced in the cat's mind. The faculty of representation which we know the cat to possess must as necessarily produce a conception of the milk as we know that it produces the perception of the milk when the saucer is placed on the floor under its eyes.

A named conception is produced by an extension of the same process which produced the unnamed conception. Whatever may have been the origin of language, there can be no doubt that words came to represent thoughts by some process of association or other. Now, if a word came to be associated with any particular object or action, the perception of similar objects or actions would call up the word

by the laws of association, and thus the word would come to be the name of a conception of a class of objects or actions.

An imagination is the combination of two or more conceptions called up into the mind by some association, such that, while the things represented by the parts have been met with in past experience, the thing represented by the whole has not been met with in past experience. Like conceptions, therefore, they have been produced by an extension of the same process which has produced perceptions.

Conceptions and imaginations differ from perceptions, not only in degree, by their relative faintness and vagueness, but also *in kind*, as we shall now proceed to show.

In the chapter on "Perception" we saw that a perception (1) possesses permanence, and (2) implies the existence of something beyond consciousness. Conceptions and imaginations possess neither of these characteristics. For example, suppose that an object is removed from a room in my absence from the room, and that, on my return, I notice the absence of the object. I could not notice its absence unless I had a conception of the object in my mind. This conception, however, does not produce in me the belief that the ideal tactual sensations represented can be vividly experienced in the future; for the faint conceptions have not been followed by such experiences in the past as vivid perceptions have. It, therefore, gives me no belief in its permanent existence. Again, conceptions and imaginations are always called up into the mind by some association. For example, to mention an instance already given, my perception of a tree in blossom may call up a conception of the fruit. Therefore the conception of the fruit has its cause in immediately preceding consciousness, namely, the perception of the tree in blossom. Thus conceptions have their causes in immediately preceding consciousness.

Therefore we are not obliged to go outside consciousness

to seek the causes of conceptions and imaginations, as we have to do to seek those of perceptions. Thus conceptions and imaginations are not regarded by us as either permanent existences (as perceptions were regarded before the evolution of self) or as caused by existences outside "self" (as perceptions came to be regarded after the evolution of "self").

CHAPTER XI.

THE WILL.

DESIRE and fear, like all other kinds of consciousness, are compounded of both cognition (belief) and feeling. The former or intellectual part of desire or fear is the expectation of future sensation, the expectation being conditional on the performance of a certain action. The latter, or feeling part of desire or fear, is the feeling produced by this belief. Thus, as, in general, different kinds of belief produce in us different varieties of feeling, so the feeling part of desire or fear is the particular variety of feeling produced by the conditional expectation of future sensation. If the future sensation expected is a pleasant one, the feeling produced is that which belongs to a desire. If the future sensation expected is a painful one, the feeling produced is that which belongs to a fear.

In Chapter II. we saw that pleasure and pain prompt to actions determined by the passage of the physical current along the efferent nerves in courses of least resistance. The same is true of desires and fears; for the expectation of pleasure is itself pleasurable, and the expectation of pain is itself painful. We further showed that pleasure and pain gradually produced adapted actions, that is, actions adapted to obtain future pleasure, or avoid future pain, before the development of intelligence. After the development of intelligence, these actions came to be associated with the

future pleasure, or with the avoidance of the future pain, and therefore came to be themselves pleasurable. Thus arose the desire to perform actions adapted to procure the expected pleasure or to avoid the expected pain.

It should, however, be pointed out that the words *desire* and *fear* are sometimes used in a sense different from the above definitions. For example, the desire to visit the moon might arise in an astronomer's mind, and the desire to partake of the tempting things in a confectioner's shop would probably arise in the mind of a hungry boy standing outside the shop, even if he had no money in his pocket. But such desires as these are imaginary rather than real desires. The possibility of satisfying them is imagined. They do not produce voluntary adapted actions. Involuntary unadapted actions are sometimes produced by such desires ; but the only desires which prompt to voluntary adapted actions are those which contain some expectation of the desired pleasure. It is with this latter kind of desires only that we are concerned in the present chapter.

The only effect of fear in producing voluntary adapted actions is its effect in producing the desire to avoid the pain feared, and, therefore, also the action adapted to avoid the pain feared. We shall henceforth, therefore, speak of desires only.

Thus the feeling part of desire is a feeling prompting to the performance of a particular action, this action being that which it is believed (this belief is the intellectual element in the desire) will procure the pleasure (absolute or relative) expected.

We know that desire is a very important factor in determining action. It requires now to be considered whether action is completely determined by the desire of pleasure,* or whether

* The desire to avoid pain may be regarded as the desire of relative pleasure.

there is something else beside desire which serves as a factor in determining action.

Of these two alternative theories the former necessarily implies that man is not a free agent. This we shall now proceed to prove.

Desires are the effects on man of his environment. They rise up in his mind unbidden. Therefore a man cannot choose by what desires he shall be influenced. It is true that a man can keep out of the way of temptation, and thus prevent desires from springing up in his mind; and he can sometimes resolutely turn his mind away from temptation on its first presentation; but if desire completely determines action, that which determines him to keep out of the way of temptation, or to resist its influence, is a desire, and this desire must have risen up in his mind unbidden—must, in fact, be the effect of past experience. It is further true that a man may, as the result of a previously formed resolution, succeed in resisting temptation; but, on the supposition that desire completely determines action, this resistance must have been determined by a desire, and this desire must have sprung up in his mind unbidden—must, in fact, like the former desire, be the effect of past experience.

Therefore it necessarily follows, from the supposition that desire completely determines action, that all human actions are necessary, and man himself a mere machine.

Therefore the supposition that man possesses free-will necessarily implies that his actions are not wholly determined by desire, in other words, that they are partly determined by something different from desire, something which gives him the power of controlling and resisting his strongest desire.

We have, therefore, the two alternative theories:—(1) that action is completely determined by desire; and (2) that action is partly determined by desire, but partly also by something different from desire.

We shall first consider the arguments which can be urged in support of the second theory. When a man is under the influence of more than one desire, it frequently happens that a certain delay intervenes before action takes place. During this delay a mental process takes place which results in one desire becoming paramount over the others. The action corresponding to this paramount desire is then performed. At first sight these phenomena seem to be irreconcilable with the supposition that action is completely determined by desire. They seem to support the supposition that the will is something distinct from desire, something which chooses from among the conflicting desires the one which passes into action. There are four things in these phenomena which, at first sight, appear to be irreconcilable with the first theory of human action, and which, therefore, furnish arguments in support of the second theory of human action.

a. In the first place, why should there be any delay? If action is completely determined by desire, why should not the conflicting desires have effect in action of some kind or other at once? It is impossible to suppose that the desires exactly neutralize one another. How, then, are we to explain why they apparently remain in equilibrium for a time, unless we suppose that the will is something distinct from them which is able to exercise control over them?

b. In the second place, how are we to explain, except on this latter supposition, why the prevailing desire has its full effect in the end, while the others appear to have no effect at all in determining action?

c. In the third place, how are we to explain why it frequently happens that a desire which was not originally the strongest passes into action?

d. In the fourth place, the supposition that the desire which prompts to the action which is actually taken is the strongest at the moment of action implies that desires are commensur-

able with one another, and this seems to be irreconcilable with the fact that pleasures are of different kinds, and, therefore, incommensurable.

Further, the second theory is supported by all the arguments which can be urged in favour of free-will. They are these :—

e. The argument based on man's consciousness that he is a free agent.

f. The argument based on the fact that man's actions appear to be very different from those of a machine. According to the first theory of human action, man is a machine worked by his environment, and all his actions purely mechanical. Therefore the fact that it is difficult to regard human actions as purely mechanical actions is an argument in favour of the second theory of human action.

g. The argument based on the belief that the general acceptance of the first theory would destroy, or at least go very far towards destroying, the foundations of morality.

h. The argument based on the fact that the acceptance of the first theory would render all punishment of criminals unjust.

i. The argument based on the fact that men universally believe, and have always believed, that certain actions are praiseworthy and certain other actions blameworthy.

We shall now endeavour to answer these apparently strong arguments which may be urged in favour of the second theory.

a. In the first place, we have to explain how it is that, in cases when several desires are presented to the mind, a certain delay takes place before action is taken.

On the theory which we are defending, which regards action as wholly determined by desire, it is obvious that this delay could not take place, unless it be caused by the presence of another desire in the mind, in addition to those

by which we have supposed the mind to be influenced. We shall show that the delay in action is caused by another desire, and we shall show how this desire has been evolved.

This delay before acting is almost confined to man. The animals rarely deliberate as to the course of action they will pursue. They act on the impulse (desire) of the moment. There is no feeling of doubt or hesitation in their minds as to the expediency of obeying these impulses or immediate desires. In man, however, it is different, especially in civilized man. He has come to recognize that "second thoughts are best." Experience has taught him that it is inexpedient to act on the impulse of the moment, for, by doing so, he is likely to lay up for himself trouble in the future far outweighing the present pleasure which he expects to obtain from the action. This doubt as to the expediency of obeying his first impulses is in proportion to the degree in which the man has been educated, that is to say, in proportion to the degree in which he has supplemented his own individual experience by that of others. This doubt of the expediency of acting on the impulse of the moment which has been produced by experience necessarily produces a desire to delay action, until by careful consideration of the future consequences of the action the doubt has been either removed or strengthened. Thus there has been gradually evolved in man, and especially in highly civilized man, a desire to delay action in all cases where there are conflicting desires. If this desire is strong enough to neutralize the impulse of the moment, the action is delayed. If the consideration which ensues results in a diminution of the doubt, and, therefore, also of the corresponding desire, the action takes place as soon as this desire becomes less than the impulse or desire of the moment. If the consideration which ensues results in an increase of the doubt, and, therefore, also of the corresponding desire, action does not take place.

There are, of course, many cases which will not admit of delay in acting. In these cases, if the desire to act is only a little greater than the desire to delay action, the phenomenon of hesitating action is sometimes manifested. This is explained by the fact that the desire to delay action has increased after the commencement of the action, and become greater than the desire to act, so that the action is not completed. There are, also, other cases which will admit of a little delay, but only a little. In such cases the desire to act without much delay reinforces the desire to act, and action takes place, if it takes place at all, sooner than it otherwise would.

b. We have now to explain, on the first theory of human action, why the prevailing desire has its full effect in the end, while the others appear to have no effect at all in determining action.

A desire can have no effect in producing a voluntary action unless there is an idea of some action in the mind adapted to gratify it. If something is desired which it is known to be impossible to obtain, no voluntary adapted action takes place. When a man performs some action for the purpose of gratifying a desire, he necessarily believes that he has some chance of obtaining the pleasure desired. If he had absolutely no hope of getting what he wants, he would cease trying to get it. However much a man might wish to visit the moon, he would not try to get there, because he knows that his wish cannot be gratified.

Now, when a man is under the influence of several desires, and, after a little delay, decides in favour of one of them (that is to say, on full consideration one of the pleasures desired is found to be most desirable), the other desires are regarded as desires which it is impossible to gratify. Therefore these last desires have no effect whatever on voluntary action, and therefore the paramount desire has its full effect undisturbed by the influence on the others.

c. We have now to explain why the desire which finally passes into action is frequently a desire which was not at first the strongest of those present in consciousness.

In the process of thought which takes place during the delay, the future consequences of the different courses of action are carefully considered. The delay affords time for representations of pleasures or pains likely to ensue in the future, sometimes in the distant future, to be called up into the mind; or if, as probably usually happens, these pleasures and pains are vaguely present at the beginning, the delay enables them to be more adequately represented—in a word, to be more vividly realized—and the corresponding desires to be thereby intensified. Hence it follows that the strongest desire at the time of action may be one which was not originally the strongest.

d. We come now to the argument which is based on the fact that pleasures are of different kinds.

It does not necessarily follow that because pleasures are of different kinds therefore the effects of the representations of different pleasures on the mind in prompting to action are of different kinds and, therefore, incommensurable. In fact, these effects must be commensurable, as the following considerations will prove.

Suppose that, at Christmas time, a child is offered the choice between giving a party to his young friends and going to see a pantomime, and suppose that he chooses the former pleasure. Now these two pleasures are of very different kinds, and the case is obviously one in which action is determined wholly by desire. Considerations of duty, or, indeed, of anything other than pleasure, do not come into the case at all. It is therefore manifest that the desire which prevails has a greater effect in prompting to action than the other. Further, by increasing the latter desire (let us say by offering to take him to see two pantomimes, or

more, if necessary) the boy would be led to choose the latter pleasure. Therefore the representation of these two different kinds of pleasure have effects in prompting to action which are commensurable with one another.

Perhaps the most pronounced difference of kind between different pleasures is that which distinguishes what may be called *noble* pleasures from those which are either ignoble or trivial. Many men, in most of their moods, would prefer playing billiards to reading poetry, and yet, feeling that the latter pleasure is a much more noble one, might be a little ashamed of their preference.

This difference between noble and ignoble pleasures has been produced by their association with the world's approval and disapproval respectively. Of all the productions of man, poetry is the most admired. Hence, apart from the intrinsic pleasure which the reading of poetry gives, there is the added pleasure of the gratification of pride. In some degree, also, this pleasure gratifies the desire which springs from the feeling of moral obligation.* On the other hand, association with the world's disapproval has conferred on ignoble pleasures the painful feeling of shame and, in some cases, of self-blame. Indulgence in a pleasure which is not ignoble, but only trivial, may even be regarded as blameworthy, if it is indulged in excess. "Blind Man's Buff" is a very harmless game; but if a man were to devote the greater part of his life to this game, he would be both despised and blamed. The fact would be taken both by himself and others to indicate that his mind was not of the kind which is approved by the world.

Noble pleasures are sometimes indulged in for the added associated pleasure alone. It is said, whether truly or not we cannot say, that society people sometimes read certain books, not because they want to read them, but because it

* *Vide* Chap. XII.

is "the thing" to read them, and sometimes go to hear Wagner's music for a similar reason. It seems a strange reason for reading a book; but these people are not so irrational as at first sight appears. They do not get the pleasure which they pretend to get, but they get the pleasure of gratified pride, and avoid the shame of not knowing about, not being able to talk about, and not seeming to care about, those things which it is "the thing" to know about, to be able to talk about, and to care about.

Thus, although the intrinsic pleasure of reading poetry may be less than that of playing billiards, the associated pleasure may suffice to more than make up the difference; if it does not suffice, although the man will choose billiards, it will produce in his mind the feeling that it would have been nobler in him to have chosen poetry, and even, perhaps, a little of the feeling that he *ought* to have chosen poetry.

We have now to consider the arguments which are urged in support of the doctrine of free-will. All such arguments may be urged, with equal force, in support of the second theory of human action.

e. The argument which is based on the fact that our consciousness emphatically declares that we are free.

In order that we may be able to estimate the force of this argument, we must first enquire into the origin of this consciousness of freedom in action. Is it an intuition originally implanted in the mind, or is it an induction from experience of the phenomena of human life? We shall show that it is an induction from experience.

In the first place, apart from philosophical and scientific considerations, experience undoubtedly strongly tends to prove that men possess free-will. The actions and consciousness of men are such that they find it impossible to regard themselves as mere machines acting mechanically—in other words, necessarily, as machines are known to act. Under

apparently the same circumstances, men, at different times, act in very different ways. A machine, on the other hand, always acts in the same way under the same circumstances. Further, a man's habits, or ways of acting, sometimes suddenly change, which, again, seems to imply that he is essentially different from a machine. Further, although many human actions appear to be the natural effects of his environment upon him, there are many others which seem impossible to account for in this way. Indeed, he frequently rather seems to resist the natural effects of his environment than to act as if he were a machine worked by his environment. Again, it is difficult to reconcile with the supposition that man is a machine the frequent hesitation of the will in choosing between two or more actions, and its occasional alternation from one choice to another before action takes place. In the latter case, it would seem to hold back the action, in order that future consequences may be more fully taken into account. In a word, it appears to give itself a chance of reconsidering its decision. This seems very different from the actions of machines.

Apart, indeed, from scientific and philosophical reasonings, a consideration of human actions generally impresses men irresistibly with the belief that man is, in part, a machine, but, in part also, not a machine. He is supposed to act like a machine when he yields to the strongest desire; but there is believed to be some power in him which can resist the influences of his environment, some power which is often not exercised, but which he can exercise if he choose. To this power are ascribed the sudden changes of habit referred to above.

Therefore the consciousness of free-will is an inference from the experiences of every-day life. It is an inference which appears to be so firmly based, that its truth has been very seldom questioned.

In the second place, apart from scientific and philosophical considerations, there is nothing in our experience to negative this belief. Necessitarians maintain that the kind of necessity which governs men's actions is the necessity to act in adaptation to their strongest desire. Such a necessity as this can produce no feeling of compulsion, and therefore experience cannot afford any practical proof that men do not act under this necessity.

Suppose that a dancer is so acted upon by invisible machinery as to be compelled to go through all the movements of a particular dance. Then, if this particular dance happened to be precisely the same, in every detail, as the one she would otherwise have performed of her own supposed free-will, she would feel no compulsion, and hence mistakenly imagine that she had been free to dance otherwise. Had she tried to dance otherwise, however, she would have felt the compulsion, and have recognized that she was not free. According to the theory of necessitarians, man can never try to do otherwise than he does (for to do so would imply that he could desire otherwise than he desires), and, therefore, can never have a practical proof of the necessity under which he acts.

It follows from the above reasoning that man's consciousness that he is a free agent is not to be regarded as an independent argument in favour of free-will. Being entirely based on the apparent unaccountability of human actions, its validity will be completely destroyed if human actions can be shown to be accountable as completely determined by the influence upon men of their environment. We shall endeavour to show that human actions are so accountable in our answer to the next argument in favour of free-will.

f. We have now to answer the argument in favour of the second theory, which is based on the fact that man's actions appear to be very different from those of a machine.

We shall endeavour to meet this argument by showing that all human actions can be accounted for on the supposition that man is a machine worked by his environment. In order to prove this we shall select particular actions as examples of different kinds of human actions of the sort most difficult to account for, on the supposition in question, and we shall endeavour to account for them on this supposition.

We shall consider actions belonging to the three classes:— (1) Involuntary actions; (2) voluntary actions not manifesting choice; and (3) voluntary actions manifesting choice.

(1) As the first example, let us suppose that a boy who has been quite still for some time, suddenly, without any apparent cause, shouts out joyously, and executes a dance of a kind indicating glee. Let us further suppose that this exhibition of glee is caused by the boy's sudden recollection that his father had promised to buy him a pony. Such actions as these are, undoubtedly, difficult to reconcile, at first sight, with the supposition that man is a mere machine; for there is apparently nothing in the boy's environment to cause such actions. And since a mere material substance could not perform such movements without a cause, it seems to follow that there must be some non-material entity in the boy which is the cause of the movements. If we look more closely into the matter, however, we shall find adequate cause for such movements in the boy's environment, if we understand by the term *environment* not only the boy's present environment, but also the past environment of himself and his ancestors dating back to the origin of life.

In the first place, the pleasurable anticipation of possessing a pony is a representation called up in the boy's mind, in accordance with the laws of association, in the manner shown in Chapter IV. This representation has been con-

verted into an anticipation by the process of evolution, in the manner explained in Chapter VII. Therefore the sudden occurrence of this anticipation is the effect of the past environment on the boy. So far, at any rate, the boy may be regarded as a machine worked by the environment.

In the second place, this anticipation of pleasure is caused by a particular kind of vibration at the principal centre of consciousness, as shown in Chapter V. Now, it was further shown in this chapter that, in cases where the vibration is very intense—that is to say, when the pleasurable or painful emotion is very strong—it passes from the principal centre of consciousness along courses of least resistance, without waiting for the guidance of intelligence, producing purposeless actions. We infer, therefore, that the purposeless actions exhibited by the boy are those determined by the passage of vibrations from the principal centre of consciousness along courses of least resistance for intense pleasurable emotions. But these courses, although independent of the boy's present environment, are the courses which have been gradually determined as avenues for the physical currents corresponding to excessive pleasurable excitements during the entire course of the evolution of animal life. Therefore the causes of the boy's actions, although far removed from observation, are nevertheless to be found in the environment; not, indeed, in the boy's present environment, but in the past environment of his ancestors, dating back to the origin of life. If, therefore, we give this extended meaning to the term *environment*, we see that, throughout the entire action under consideration, we may regard the boy as a machine worked by his environment. His actions are seen to be as purely mechanical as if they were caused by some visible external agency compelling him to move in the way he does.

The above is an example of an action which partakes more of an involuntary than voluntary character. Very

little, if any, will is manifested in the action. We shall now consider actions in which the will is more prominently manifested.

The phenomena of the will, especially of that more complex form of it which we call *resolution*, are, at first sight, difficult to account for on the supposition that man is a mere machine. If we examine them closely, however, we shall find that they are so accountable.

Voluntary actions consist of two classes: those which involve a previous mental act of *choosing* between two or more actions to the performance of each of which the agent is more or less prompted, and those which do not involve a previous choice.

(2) The latter class of voluntary actions present no difficulty in the way of the acceptance of the necessitarian doctrine; for since there is no prompting to any other action, these actions are undoubtedly all necessary. If a desire arises in the mind of a man which he is able to gratify, and if there is no consideration prompting him to refrain from gratifying it, the desire to gratify it will necessarily lead to the performance of the appropriate action.

This class of voluntary actions includes many ethical actions. Actions prompted by kindness, for example, frequently belong to this class. Some persons are so happily constituted by nature that they are seldom tempted to do wrong or to refrain from doing right. Generally speaking, nature has given to them right desires, and they therefore *necessarily* act in a kindly, or, as we say, in a *good-natured* way in their intercourse with their fellow-men. It must be observed, however, that kind actions which involve sensible self-sacrifice do not come under this head; for in such cases there must necessarily be a sensible prompting to refrain.

Certain wrong actions are also included in this class of actions. It includes all those wrong actions in which the

agents are under no influence prompting them to refrain. Of course, criminal actions are not included, since here there is always the restraining influence due to the fear of punishment. But, in many cases, lesser sins are committed by men whose conscience is dead, in which there is no prompting to refrain; indeed, it is manifest that it is as impossible to regard a man in whom conscience is dead as responsible for his actions, as it is to regard animals as responsible for their actions. Even on the supposition that a man has the power to resist his strongest desire at the call of duty, a man who has no sense of duty is as incapable of exercising this power as if he had none. The possession of a conscience, that is, of a sense of duty, is a necessary condition for the exercise of free-will. Therefore, when the conscience is dead, and when only one desire is present, the action is a necessary action.

(3) We have now to consider those voluntary actions in which the phenomenon of *choice* is manifested—the choice namely, between two or more actions to which the agent is prompted, or, as is generally the case, the choice between doing, or refraining from doing, a particular action.

Of these actions it will only be necessary to consider those in which the inclination to wrong-doing is successfully resisted, since, if it be proved that these actions are necessary, it will not be contended that the action of yielding to temptation is otherwise than necessary also.

We shall consider the following three kinds of actions: (a) Resistance to inclination when the motive is selfish, namely, the consideration of one's own future welfare; (b) resistance to inclination when the motive is unselfish, namely, consideration of the welfare of others; and (c) resistance to inclination when the motive is the feeling that it is a *duty* to resist. In general, the motives to resistance are complex, being partly selfish, partly unselfish, and

partly moral; but it will only be necessary to consider cases in which the motive is simple; for if in each case the action is necessary when the motive is simple, it must also be necessary when two or all three of the motives are present.

(a) Let us suppose that a student to whom study is irksome, at least to the extent required of him, is working under continually recurring temptation to throw his books aside, and engage himself in occupations of a more congenial nature; and that yet, in view of the advantages in the distant future which he knows will accrue to him if he continues to apply himself to his studies, he contrives to resist such temptations. At first sight the cause of the student's continuance in well-doing appears to be something in the man striving against the influences of his environment; but, if we consider the matter closely, we shall find that in this case also the cause is to be found in the past environment, which exerts an influence opposed to, and stronger than, that of the present environment.

Whence comes man's power of resisting temptations to present gratifications? Animals do not appear to manifest any of this power; indeed, the conditions of their life are such that they do not seem to need it. The source of this power is undoubtedly to be found in the great development of the intelligence of man by which his thoughts obtain a vastly greater range over the future than animals possess. Man works for ends which can only be obtained in the distant future, while the ends which animals pursue are restricted to the present, or, to speak more accurately, to the immediate future. It is true that some of the actions of animals are adapted to effect comparatively remote ends; but these remote ends are not present in their consciousness. The process of evolution has simply formed in them instinctive *habits* of acting in such a way as to effect the remote ends.

Thus the great development of intelligence in man has made it possible for the consideration of the distant future consequences of his actions to have some share in determining present action. If it is foreseen that the action would have good consequences in the distant future, this expectation of pleasure in the distant future is a desire; if it is foreseen that the action would have evil consequences in the distant future, this expectation of pain in the distant future is a fear which produces the desire to avoid the pain, and therefore to abstain from performing the action. If, therefore, a man is strongly tempted to perform an action for the sake of the present gratification which it promises, and if, at the same time, he foresees that the action would bring evil consequences in the distant future far outweighing the present gratification to be obtained, we have a case in which a man is prompted by two conflicting desires. Thus, in the case under discussion, the student is prompted by two conflicting desires. Supposing, therefore, that the student is not influenced by moral considerations (which will fall to be considered later), these two desires must completely determine the resulting action. Therefore the student resists the temptation to throw his books aside because, on the whole, he prefers to apply himself to his studies.

We have still to consider a somewhat more complex case of this class of actions, namely, the case of a voluntary action manifesting the effect of a previously formed resolution to resist the temptation to do wrong. We shall suppose, for example, that the student mentioned above is aided in his resistance to temptation by a previously formed resolution to resist. We know that such resolutions sometimes have the effect of aiding resistance to temptation.

We have seen that man has the power of looking to the distant future, and of regulating his actions, in some degree, in accordance with considerations thereby suggested. But

his power of doing this is very imperfect. Benefits and evils anticipated in the distant future are very much less vividly represented in consciousness, and for this reason, as well as because they are distant, produce very much less intense desires, than those anticipated in the immediate future. With thoughtless and inconsiderate men—a very numerous class—anticipations of the distant future are probably very vaguely present in their consciousness, and hence produce comparatively little effect in influencing their actions. And with all men these anticipations are very inadequately realized in consciousness.

Further, while at all times the future consequences of our actions are inadequately realized, this is particularly the case at the actual time of temptation. At such times the anticipated gratifications of the moment occupy the attention of the mind so absorbingly that the future consequences of the actions almost go out of consciousness altogether, in the manner previously explained.

Now, experience proves to us that in consequence of this inadequate realization of the future consequences of our actions, we are very liable to act imprudently under the pressure of temptation to present gratifications. Hence, at a time when we are not under the influence of temptation, and are, therefore, able to realize, with some degree of vividness, the future consequences of our actions, we resolve that on future occasions, when the temptation presents itself, we will resist its influence.

So much by way of explanation of the nature and causes of that particular consciousness which we term *resolution*. It is a very strong desire, expressed or unexpressed. We have still to explain how it is that the resolution is able to influence our action, as it undoubtedly does sometimes. The effect of such a resolution in modifying action is due to the fact that the recollection of it at the time of temptation

brings with it, in accordance with the laws of association, more adequate representations of the future consequences of our actions than would otherwise occur, producing stronger corresponding desires, which thus obtain a greater chance of winning in the conflict of desires which ensues. This explanation corresponds exactly with the facts. Desires relating to the distant future may, or may not, prevail; but the resolution undoubtedly gives them the best chance of doing so.

Hence it appears that the resolution is related to the future in a manner similar to the way in which the taking of notes of events in writing is related to the past. It creates an association which ensures that representations of the future consequences of our contemplated actions shall come into consciousness at the proper time, in the same way that a memorandum ensures that the memory of a past event shall come into consciousness at the proper time. It aids intelligence in the same way that a memorandum aids memory.

(b) We now come to the case in which the motive is unselfish. When a man saves the life of another at the imminent risk of his own, there is a momentary conflict between selfish and unselfish desires. At first sight it looks as if there must be something else beside desire which determines the action, especially when the risk incurred is very great; for how is it possible that consideration for the welfare of another, who is perhaps a total stranger, can produce in a man a desire which is stronger than that which is produced by a consideration of his own entire future life? In order to meet this difficulty, it is only necessary to observe that desires are very far from being proportional to the pleasures anticipated. Their intensity depends partly on the vividness of the representations of those pleasures, and partly on the nearness of the time when they are expected. Now, these representations vary very greatly in vividness

from time to time, and when the representation of one pleasure happens to be called up with special vividness, those of others will tend to go out of the mind altogether, or at least to become very faint, even when the pleasures represented by these latter are very great. This is precisely what happens in the case before us. The sight of a fellow-being in imminent peril of his life, produces in the sympathetic spectator such a vivid representation of the painful consequences likely to ensue, and therefore also such a vivid desire to prevent it, that selfish desires tend to go out of the mind altogether, or to become faint, and thus the unselfish desire, which is normally much weaker than the selfish one, becomes, for the moment, more powerful than the other.

This action is similar, in one respect, to a certain class of wrong actions, in which the agent yields to temptation. Consider the case of a drunkard who persists in his drinking habits in spite of the fact, of which he is well aware, that by so doing he is bringing ruin both upon himself and his family. In this case also there is the choice of the lesser pleasure; for the pleasure which follows persistence in wrong-doing is much less than that which follows abstention, and, in the case we have supposed, is known to be less by the man himself, but, in this case also as in the last, it is *feeling* which determines the will, not knowledge, except in so far as the latter produces feeling. Although the man knows that he is choosing badly for himself, he does not *feel* this at the moment of action. His desire to drink is greater than his desire to abstain, notwithstanding that he knows that he is foolish in so choosing. Hence the will is not, as sometimes represented, the "last dictate of the understanding"; it is, at least in the cases hitherto considered (and we shall prove that this is also true in the cases remaining to be considered), the strongest desire at the moment of action.

Before considering the class of actions (*c*) in which the strongest desire is resisted by a sense of duty, we must enquire what the sense of duty, or feeling of moral obligation, is. The next chapter will be devoted to this enquiry, and in the final chapter we shall resume the course of the argument interrupted by this necessary digression.

CHAPTER XII.

MORAL OBLIGATION.

ALTHOUGH it is commonly asserted that the feeling of moral obligation is *sui generis*, something distinct in kind from all other feelings, and not, therefore, derivable from them by the process of evolution, we shall endeavour to show that this is not the case, and that the rise of this feeling does not imply a breach of continuity in the evolution of consciousness. We shall do this by showing how the so-called gulf was actually bridged over by the process of evolution.

Man is variously affected by the different things in his environment. Some things give him pleasure, some give him pain, and to some he is practically indifferent. Those things which give him pleasure he approves, or calls good, and those which give him pain he disapproves, or calls bad. For example, a kind man approves, or calls good, those actions which give pleasure to others, and disapproves, or calls bad, those which give pain to others. For the same reason, men approve certain physical, mental, and moral endowments, or qualities, manifested by man, and certain circumstances or surroundings of his life, and disapprove others. In general, all kinds of knowledge produce in man feelings of pleasure or pain, although, in many cases, the pleasure or pain may be so small that the knowledge may be said to be practically indifferent to him. Among the things which affect a man is the knowledge which he obtains by comparing himself with other men, of the relative excel-

lences or defects of his physical, mental and moral endowments, and of the circumstances of his life. When a man, on comparing himself with other men, observes that he excels them in any of those things which men approve, this knowledge gives him some degree of that kind of pleasurable feeling which is called pride. Further, the knowledge, or belief, that others observe these excellences gives a similar but more intense feeling of pride. Thus pride is a feeling produced partly by self-approval and partly by the approval of others. Similarly, when a man, on comparing himself with other men, observes that he falls behind them in any of those things which men approve, this knowledge carries with it some degree of that kind of painful feeling which we call shame. Further, the knowledge or belief that others observe these defects carries along with it a similar but much more intense feeling of shame. Thus shame is a feeling produced partly by self-disapproval and partly by the disapproval of others.

The approval and disapproval of others have each two distinct effects in producing pride and shame respectively :— (1) a direct effect, and (2) an indirect effect. The latter is the effect produced indirectly by increasing self-approval or self-disapproval. For example, men often boast of, or pretend to, qualities, or wealth, or rank which do not belong to them, and which they know do not belong to them, for the sake of evoking the admiration of others; and, on the other hand, men often endeavour to hide from others their disapproved qualities, or circumstances, for the sake of avoiding the disapproval of others. This is the direct effect of the approval and disapproval of others, since it is produced independently of self-approval and self-disapproval. The indirect effect of the approval and disapproval of others is due to their effect in producing or increasing self-approval and self-disapproval respectively. The tendency of flattery to produce vanity is a matter of common knowledge.

The effects of the approval and disapproval of others in producing self-approval and self-disapproval respectively being very considerable, even in the course of an individual life, it is natural to suppose that, when certain actions have been approved (or praised) or disapproved (or blamed or punished) for hundreds of generations, these effects will be very great indeed.

Self-approval and self-disapproval, and the approval and disapproval of others, produce the feelings of pride and shame respectively in animals as well as in man.

Again, it is not necessary, in order that a creature may experience feelings of pride and shame, that it should have a sense of responsibility for its actions, in other words, be conscious that it is a free agent. This is proved by the fact that men are both proud and ashamed respectively of many things for which they know they are not responsible. They are proud of noble birth, of all kinds of inherited mental and physical endowments, and of success in life in cases where the success has not been achieved by industry; and they are often ashamed of humble, and especially of ignoble birth, of undeserved poverty, of all kinds of inherited mental and physical defects, and of failure in life in cases in which the failure is not due to indolence.

We have now shown that the feelings of pride and shame arise quite independently of the feeling of responsibility; for they are produced in a very great degree of intensity in cases in which men know that they are not responsible for the things of which they are proud or ashamed respectively. It being given, therefore, that self-approval and self-disapproval and the approval and disapproval of others produce the feelings of pride and shame independently of the sense of responsibility, we have now to enquire what effects they produce when this sense of responsibility* exists. We shall find that

* By *sense of responsibility* is here meant, not sense of moral respon-

the sense of responsibility adds new elements to the pride and shame which would otherwise be produced, namely, the elements of self-praise and self-blame respectively.

The feelings of self-blame and self-praise are derived from those of anger and gratitude respectively, as we shall now proceed to show.

Anger is the emotion which prompts men to repay injuries done to them, just as gratitude is the emotion which prompts men to repay benefits received. The disliking of the injury and the liking of the benefit are extended to their causes by association, and these hostile and kindly feelings prompt to actions giving pain and pleasure respectively to the latter. In the case of animals, and, frequently, in some degree, in the case of man, anger is manifested against inanimate objects as well as against living beings. In man, however, at least in civilized man, manifestations of anger are frequently disapproved afterwards, in his calmer moments. He disapproves them on certain occasions, and endeavours, as far as possible, to restrain his anger in future on the like occasions. In other cases, he approves his anger afterwards, in his calmer moments. On these latter occasions, the injury is always believed to be one which the agent was free to abstain from causing, and it always belongs to one of the three following cases:—

(1) When the injury was done intentionally (with certain exceptions to be afterwards specified).

(2) When the injury was done not intentionally, but with the knowledge of the injury that would be done (with certain exceptions to be afterwards specified). If an injury be done unwittingly, then, although the doer is regarded as a free agent, in this particular case, since the reason for abstaining is not in his mind, he is not responsible for the

sibility, but a man's consciousness that he is a free agent ; in other words, that it was in his power to avoid the pride or shame respectively.

injury caused, unless he shows negligence, in which case the act comes under the third division.

(3) When the injury was done neither intentionally nor knowingly, but through negligence.

Now, in (1) the man who did the injury manifested the quality of unkindness or cruelty, except in cases where the receiver of the injury had himself previously acted in a manner to arouse approved anger, and these are just the cases which are excepted in (1). In (2) also unkindness is shown, except when the doer of the injury intended to benefit some other person or persons in a degree which more than compensated for the injury done, and these are just the cases excepted from (2). (3) shows the disapproved quality of thoughtlessness. Thus approved anger is confined to those injurious actions which manifest disapproved qualities in the agent, and which it is believed that the agent had it in his power to abstain from committing. When an action * arouses this approved anger the agent is regarded as *blameworthy*. Similarly, when an action arouses approved gratitude, the agent is regarded as *praiseworthy*.

The degree of blame is always proportioned to the degree in which the quality of the agent manifested by the action is disapproved. In (1) the agent is actively cruel since he does an injury to another intentionally, without sufficient provocation; in (2) the agent shows himself to be indifferent to the sufferings of another, or is passively cruel; while in (3) only the much less disapproved quality of negligence, or lack of forethought, is shown. In (1) the blame is much the greatest, and in (3) much the least.

We are now able to distinguish accurately between actions which are regarded as blameworthy and those which are merely disapproved.

A disapproved action is one which has a bad effect, that

* Abstentions from actions are supposed to be included in this term.

is, produces pain. The disapproval of such actions is quite independent of the feeling of moral obligation. All men have some degree of the quality of kindness, and, therefore, must disapprove of actions which give pain to those with whom they are not angry. For example, an incompetent man who occupies an important position may cause a vast amount of pain and annoyance to others. His actions are, therefore, disapproved as producing bad effects; but if he has done his best, he is not regarded as blameworthy, because the harm being done unintentionally, unwittingly, and without negligence, his actions do not arouse approved anger. Again, disapproved actions are even sometimes regarded as praiseworthy. Men sometimes do a great deal of harm with the best intentions, not through negligence or incompetence, but through unforeseen circumstances. Indeed, we may conceive a case in which a man, at the risk of his own life, endeavours to save a child from being run over, and by his action unfortunately causes the very calamity he seeks to avert, while, if he had not interfered, the child might have had a chance of escaping. This is a very bad action in the sense *disapproved*; but it is regarded as a praiseworthy action, because it arouses approved gratitude for the good intention manifested. Thus a disapproved action is only regarded as blameworthy when it arouses approved anger, and sometimes it is regarded as praiseworthy. Similarly, an approved action is only regarded as praiseworthy when it arouses approved gratitude, and sometimes it is regarded as blameworthy. Finally, a distinction must be made between actions which are regarded as praiseworthy and those which on the supposition of free-will are really praiseworthy; for we shall see in the next chapter that, even on this supposition, many actions which are universally regarded as praiseworthy are not really praiseworthy.

The above reasoning shows that the word "owe" which

has been employed to express the feeling of moral obligation is precisely adapted to this purpose; for the feeling of approved gratitude is the feeling that we owe someone a service, and the feeling of approved anger is the feeling that we owe someone an injury. We ought to do an action when that action partly or wholly repays a service received, and we ought not to do an action when that action would do an injury to some one which is either not owed at all, or not owed to the extent of the injury caused. At first sight, many actions appear to be exceptions to this statement, but, on consideration, they will be found not to be so. No doubt, if a man omitted to help a stranger in distress or danger, when he could do so without much inconvenience to himself, the action would arouse approved anger; but this is because it would be supposed that the stranger would help him, under similar circumstances. In this way, every man is regarded as owing services to every other man. If it were known that the former had previously behaved in the same way to the latter, there would be no feeling of approved anger. It is true that a man's sense of duty may go beyond this, but this would be because he felt that he owed a duty to God, or to himself. In so far as a man confers benefits on others beyond what he owes, the feeling that urges him to do so is kindness, not sense of duty.

Self-blame is the blame of oneself for actions or abstentions from action which arouse approved anger. Self-praise is the praise of oneself for actions or abstentions from action which arouse approved gratitude. For example, if a man is reduced to poverty from no fault of his own, he disapproves and is ashamed of it, but he does not blame himself for it. If, however, he has brought poverty upon himself by extravagant living or by reckless speculation, he not only disapproves of his poverty, but he is angry with himself for bringing upon himself the injuries which it entails. He

therefore blames himself. As another example, suppose that a man, A, is seen by an acquaintance, B, talking with a friend, C, who is very shabbily dressed. It is possible that A might be ashamed of being seen in the company of so shabby a man. It is possible that he might be a little angry with C (and therefore blame him) for dressing shabbily; but if C were a close friend from whose friendship he had received much pleasure, it is much more probable that he would be angry with himself (and therefore blame himself) for being ashamed than with his friend for being shabby. In this case he would feel that he owed it to his friend not to be ashamed of him.

The feelings of self-praise and self-blame produce the desire to obtain the former pleasant feeling and the desire to avoid the latter painful feeling.

The feeling of moral obligation or sense of duty is the desire to avoid self-blame. It has no relation whatever with the desire to earn self-praise. To make this clear it is only necessary to reflect that in all cases in which it is regarded as the duty of a man (in other words, that a man *ought*) to do, or abstain from doing, an action, he would be regarded as blameworthy if he abstained from doing it, or did it, respectively. For example, it is not regarded as the duty of a man to put his life in great danger in order to save the life of a stranger (although such an act is regarded as highly praiseworthy), because to abstain from this act would not arouse approved anger.

The consciences of men have been moulded by two distinct influences: (1) self-blame, and (2) the blame (including punishment) of others.

If the consciences of men had been moulded by the first influence only, the degree of praise or blame ascribed to blameworthy actions would be proportioned to their good or bad effects respectively (the pleasure or pain which they produce), so far as these effects are realized. We shall call

the good and bad effects the *intrinsic* goodness or badness of the actions. We shall now enquire what effect the blame of others has had on the conscience.

In the first place, if a man is blamed by others for things which he knows with absolute certainty that he is not responsible for, no self-blame can be produced. For example, if a dull boy who tries his utmost to learn is scolded or punished for his failures, shame is produced, but not self-blame.

In the second place, if a man is blamed for an action which he himself considers blameworthy, the blame of others will tend to increase self-blame.

In the third place, if a man is blamed for an action which he himself regards as indifferent (*i.e.*, neither praiseworthy nor blameworthy), the blame of others will tend to produce self-blame, which, however, will be less for an equal amount of blame than in the preceding case.

In the fourth place, if a man is blamed for an action which he himself considers praiseworthy, the effect produced by the blame of others will depend upon circumstances. We shall return to this case presently.

The effects produced by the blame of others have, of course, been accumulated by inheritance from one generation to another.

There are two reasons why actions which are not considered blameworthy by the agent are often blamed by others. In the first place, men blame others when they are angry with them, whether this anger be of the kind which we have called approved or not, but they only blame themselves in the latter case. In the second place (and this is by far the more important reason), the law punishes criminals, and, in certain cases, the community blames offenders for a reason which is different from that for which men blame themselves, namely, to prevent the crimes and offences from being committed in future. For example, consider the case of

theft. If we suppose a poor man to steal from a rich man, the bad effect of this individual act, namely, the injury done, is not great. It is much less than the injury done by an assault on the person. Therefore, if it were not for the effect of the blame (including punishment) of others, the degree of self-blame for it would not be great, certainly not nearly so great as for the latter offence. But, in the case of theft, the temptations to commit it are so numerous, and the difficulty of detecting the offender so great, that, in order to prevent people from committing it, the community has blamed and the law has punished the offender much more severely than the intrinsic badness of the act justifies—much more severely, for instance, than the offender in the case of an assault on the person. This excessive blaming and punishing has so much increased self-blame that men on whose conscience the offence of an assault in the case of a small provocation would lie lightly, would shrink with abhorrence and loathing from the thought of committing the offence of theft, even if certain that it would not be found out.

Again, consider a case of seduction in which the woman is deceived by means of a promise of marriage which is not fulfilled. The intrinsic badness of the woman's act is very much less than that of the man. If she loved him there was no immodesty in her act. The injury involved was, in the main, an injury to herself. Even the imprudence of the act is reduced to a minimum if she had absolute trust in her lover, and such trust would be creditable to her. On the other hand, the man's act did incalculable injury to another, and involved, in addition, a very serious breach of faith. Yet, for reasons altogether independent of the badness of her action, it is on the woman that the chief blame falls, and the result is that, unless she is saved from the worst consequences of her error, even when there

is no self-blame at first, as must often be the case, her self-respect will not be able to maintain itself against the repeated blows which it receives, and the feeling of self-blame will be produced and will grow gradually stronger and stronger, so long as she is subject to the influence of the world's disapproval.

It is due to the fact that the blame and punishment have not always been regulated in accordance with the intrinsic bad effects of blameworthy actions that the conscience presents many strange anomalies. In a rough way blame and punishment have been administered in accordance with the intrinsic bad effects of blameworthy actions; but there have been many exceptions, some of which we have already pointed out, and many others might be instanced. In many cases, society and the law have blamed and punished offences severely for reasons other than their intrinsic bad effects, namely, (1) because it is difficult to detect the offender, (2) because the temptations to commit them are frequent, and (3) because the temptations to commit them are very great. Now, when we consider that all these reasons are quite independent of the intrinsic badness of the actions, and that the third reason is really a reason (and, other things equal, is always so regarded) for palliating or excusing the actions, it is no wonder that morality should present many anomalies, and that the standards of morality should differ greatly in different nations, and at different times.

So great has been the effect of the blame and punishment of others in evolving the conscience that (save in certain exceptional cases, when the temptation is very great, or where there is some special reason for excusing the act) men are to be judged rather by the standard of morality of the communities of which they are members than by the intrinsic goodness or badness of their acts. In general, notwithstanding the small degree of intrinsic badness of the act in many cases,

none but very bad men will steal. To take another example, the supposed absolute incongruity between cannibalism and respectability on which depends the excellence of Artemus Ward's joke, "Any respectable cannibal will tell you where I live," is not necessarily an incongruity. Millions of cannibals have, doubtless, lived most respectable lives.

But although the disapproval of others has had much more effect in producing the standard of morality than that original and independent element of self-disapproval which is proportioned to the intrinsic badness of actions,* yet this latter element is always present more or less, and is always fighting against the former influence, in cases where they are opposed to one another. Probably the morality of most men is almost entirely imposed on them by the influence of others. But in the case of the most thoughtful and sympathetic men and women, it is probable that the influence of independent self-disapproval is considerable. It is this influence of self-disapproval which gradually produces an improvement in the standard of morality of a community. Actions which had hitherto been approved are seen to be intrinsically bad by the most thoughtful and sympathetic in the community, and these, in course of time, bring others over to their own opinion. In this way men have come to see that the system of slavery is wrong, and they are gradually coming to see that vivisection and certain kinds of sport are wrong.

Similarly, in the fourth case mentioned on p. 123, self-approval fights against the influence of the disapproval of others; but, except in the case of the most thoughtful in the community, the latter influence prevails, and even when this latter influence does not produce much effect on an individual, it must produce a great effect in the course of many generations.

The feelings of praiseworthiness and blameworthiness were

* That is, of blameworthy actions, or actions belonging to the three classes mentioned previously.

first produced in the evolution of family life. We shall therefore trace their development in the little social community which consists of a single family.

Let us consider the moral condition of the family anterior to the development of these feelings. The members of the family were bound together by the bond of family affection. This family affection is the natural result of the knowledge of one another which is produced in the members of the family by their intimate mutual intercourse. Hence kindness or sympathy would become more and more a motive to action in the family. Sometimes this motive would prevail over selfish motives; at other times the selfish motive would prevail. Now, the effects of action prompted by kindness would be observed to be good by a child who possessed, in however small a degree, the quality of kindness. Again, when a kind action was performed by one member of the family, the other members would approve it. Similarly, unkind actions would be disapproved both by the agent and by the others. In the same way, other good and bad actions would be approved and disapproved respectively. Further, the approval and disapproval of others would be manifested; for there is a tendency for all feelings to find vent in expression, and, therefore, the feelings of anger aroused by injuries both in the person injured and, through sympathy, in the others, would be manifested in the form of blame and punishment. Parents would blame and punish their children for disapproved actions, quite independently of any feeling that they were blameworthy. They would blame and punish them because they were angry with them. No doubt, if men were perfectly reasonable beings, it would be impossible for them to feel anger against any one, unless he was believed to be blameworthy. But we know that men are very far from being perfectly reasonable, and that they are least of all reasonable in their feelings. As a matter of fact, we know that

men often vent their anger on animals, and even sometimes on inanimate objects, when it is quite impossible that there can be any belief that the object of anger is blameworthy.

Now blame and punishment would produce shame in the child, especially in cases where a little shame, caused by self-disapproval, already existed. Further, when the child was old enough to have a sense of responsibility for his actions—that is to say, when he believed that he might have avoided the shame—there would be produced the feeling of anger with himself for having done himself the injury of bringing upon himself this shame. He would therefore blame himself. Further, after this feeling had been produced, the readiness of children to receive as true what their parents tell them, and to approve what their parents do, would make them regard themselves as blameworthy when blamed or punished by their parents, in all cases in which it was possible for them to do so (that is to say, in all cases except when, from the particular circumstances of the case, they had perfect assurance that they were not to blame). Finally, the child learns in time to disapprove of its anger and blame in certain cases, and thereafter regards as blameworthy only those actions which arouse its approved anger.

We have now traced the development of the feeling of moral obligation, and have found that it is developed from the feeling of anger and the consciousness of freedom in action. It has been partly produced as an effect of self-disapproval, but mainly by the disapproval of others. We have further shown that these two causes, acting on a free agent susceptible to the feeling of anger when injured, are adequate to account for the many anomalies presented by the standard of morality in any single community, and by the different standards of morality which obtain in different communities.

CHAPTER XIII.

THE WILL—(*continued*).

HAVING now traced the development of the feeling of moral obligation, we are in a position to return to the consideration of the last type (*c*) of actions mentioned in Chapter XI., namely, those in which inclination is resisted from a feeling of *duty*.

c. The feeling of moral obligation gives rise to a desire to act in such a manner as will avoid self-blame, or, in other words, secure the approval of conscience, and to abstain from acting in such a manner as will incur self-blame or the disapproval of conscience. This desire, like the desire to delay action in cases where two or more different desires compete, is a new desire produced by past experience. In the process of evolution it grew gradually stronger and stronger, until it became an important factor in the determination of action.

Thus in this class of actions also, action is completely determined by desire.

Having shown that all the different kinds of action are completely determined by desire, we conclude that the *will* is merely another name for the strongest desire at the moment of action, that, namely, which prompts to the action actually taken.

f. We now come to the argument in favour of free-will, which is based on the belief that the general acceptance of

the theory of necessitarians would destroy, or, at least, go very far towards destroying, the foundations of morality.

In order that we may estimate the precise force of this argument, we must consider the various motives which determine good actions. They are the following :—

- (1) Desire for one's own future well-being.
- (2) Desire for the well-being of others.
- (3) Desires arising from habit.

When a good action is determined solely by habit, the decision to act is made without any debate in the mind at all. In most cases the idea of acting otherwise does not come into the mind, unless as a mere matter of accident after the decision has been made. In this case there is never any temptation to act otherwise. Frequent performance of the action in the past has rendered the mind more ready to act in the same way in the future. Such an action partakes of the nature of the instinctive actions of animals, the instincts of animals being very strong habits acquired in the course of many centuries of evolution. The important effect of the acquisition of habits of well-doing in influencing action is universally recognized. When good habits have been acquired, they are usually found to regulate the life, except in cases of considerable temptation.

(4) Desire to act well and to abstain from acting ill produced by the pleasant associations connected with virtue, and the unpleasant associations connected with wrongdoing respectively.

If habit is not sufficient to keep a man right, the pleasant associations connected with well-doing, or the unpleasant associations connected with ill-doing may suffice. Wrongdoing has become repugnant because of its unpleasant associations, and virtue has come to be liked for its own sake because of its pleasant associations. This reason for

well-doing, although it results from the approval and disapproval with which the world regards good and bad actions respectively, is clearly to be distinguished from reasons (5) and (6); for the good action is not done, or the bad action is not abstained from, for the purpose of gaining either reward or the world's approval, or of avoiding either punishment or the world's disapproval, but because good actions have become pleasant through association with the pleasant effects of the world's approval, or because bad actions have become unpleasant through association with the unpleasant effects of the world's disapproval. Virtue has come to be loved for its own sake, and wrong-doing to be abhorred for its own sake, apart from consideration of their consequences; in the same way that gold has come to be valued for itself by the miser, and, in some degree, by all, apart from the consideration of the pleasure which it can procure.

For example, let us suppose that a man who has been well brought up is tempted to steal, in circumstances of great hardship and distress, on an occasion when there is no chance of his being found out, and let us further suppose that he resists the temptation. His resistance may be due solely to the fact that the very idea of stealing has become repugnant to him through its shameful associations. The act itself has become repugnant to him because of its having continually been associated in his mind with shame and prison and all the worst things in life, the effects of the world's disapproval. In this case there is a little, but a very little, debate in the mind as to the course of action to be pursued. He rejects the idea with loathing, not because he fears the shameful consequences to himself (he would still reject it if he knew there was no chance of such consequences), not because he feels that he ought not to steal, but because the act itself is repugnant to him. In

the same way, men sometimes do good actions, not solely because of their good consequences to themselves or others, or because they think it their duty to do them, but, at least partly, because well-doing has become pleasant for its own sake through its association with the world's approval.

(5) Desire of the approval, or of avoiding the disapproval of the world, or of God, or of other supernatural beings.

This desire is quite distinct from the desire of pleasing others (No. 2).

(6) Desire of reward, or to avoid punishment both in this life and in the future life.

(7) The sense of duty, or feeling of moral obligation. We endeavoured to show, in the last chapter, that this is the desire to avoid self-blame.

Of these motives to well-doing the last is the only one which belief in the necessity of all human actions can tend to destroy. Now the consideration of the motives which determine virtuous actions proves that such actions much more frequently spring from the preceding six motives than from the last. Indeed, it is hardly too much to say that for one good action which is determined by the feeling of moral obligation, hundreds are determined by the other motives, by prudence, kindness, habit, love of well-doing and hatred of ill-doing produced by pleasant and painful association respectively, desire of the approval and fear of the disapproval of others, the fear of punishment and the desire of reward. Consider, for example, acts of great self-sacrifice and of heroism. There can be no doubt that, in most cases, they are produced by kindness, not by considerations of duty. When a man saves the life of another at the risk of his own, it is, at least in the main, not because he feels it his duty to risk his life in the attempt to save another, but because he is so affected through sympathy by the perception of another's imminent danger that prudential

considerations almost go out of the mind altogether for a time, and the desire to save the life of another becomes, for the time being, paramount. Doubtless the feeling of moral obligation is a very effective motive to good actions with some men, especially with men of a religious temperament, and sometimes makes the whole life heroic; but, in spite of this, it remains true, that for men, in general, considerations of duty form but a small and comparatively unimportant part of the motives to good action.

Further, even this comparatively small effect of the belief in the necessity of human actions would not be produced at once. Although the reason might be convinced that men are not free agents, it would take a very long time for the emotions to be brought into harmony with it; and therefore, since action is determined by emotion, not by reason (except in so far as reasoning produces emotion), it follows that a long time must elapse before the belief can have its full effect, or, indeed, any very appreciable effect. But during this period all the other motives to good action will gradually increase in strength, especially the motive of kindness; for it is the natural and inevitable effect of evolution to produce a continual increase of the feeling of kindness between man and man.

There is, therefore, no reason to fear that the foundations of human morality would be destroyed by the general belief in the necessity of all human actions. Some effect in this direction would undoubtedly be produced by such belief, in course of time; but such effect would probably be more than counterbalanced by the gradual increase in the strength of other motives to good actions, especially kindness.

h. We now come to the argument in favour of free-will, which is based on the supposed injustice of the punishment of criminals on the supposition that they are not blameworthy for their crimes.

That the punishment of criminals is an injustice to them, in so far as it goes beyond preventing them from profiting by their crimes, is admitted; but we have only to consider that much more injustice would be caused by not punishing them beyond this degree to see that the former alternative is less unjust than the latter. Since, therefore, the punishment of criminals produces the minimum of injustice in the community, it is relatively just, and, therefore, right.

It should be observed, however, that the supposition that there is no free-will takes from justice some of the meaning which it has on the supposition of free-will. On the former supposition, the virtue of justice consists in the recognition that it is right to give as much pleasure as possible to every man, as far as the consideration of the welfare of others allows.

2. We now come to the final argument which may be urged in favour of free-will.

If there is no free-will, it is manifest that there is no such thing as a praiseworthy or a blameworthy action. Whence it follows that man, during all the centuries of his existence, has been under an illusion in regarding certain actions as praiseworthy and certain other actions as blameworthy. It may be urged in favour of free-will that, even if the theoretical reasons for believing this have great apparent force, it is practically impossible to do so.

Now this argument can be completely met by showing that a large part of those actions which are regarded as praiseworthy (probably by far the larger part, and certainly including those which are most highly praised) are such that a little consideration makes it impossible to regard them as praiseworthy even on the supposition that the will is free. Even on the supposition that man possesses the power to exercise control over his desires, it follows that in those cases in which this control is not exercised—that is, in

those cases in which a man acts in accordance with his strongest desire—his actions, being completely determined by desire, are necessary, and therefore not praiseworthy. Therefore actions are only praiseworthy when, from a sense of duty, they are performed in spite of the fact that they are not prompted by desire. Suppose, for example, that a man saves the life of another at very great risk of his own. Such an act is not done from a sense of duty. The claims of duty do not extend so far as this, as is shown by the fact that the man would not be regarded as blameworthy if he had not risked his life. It is the desire to benefit another which prompts to such acts of heroism, and therefore such acts, being completely determined by desire, are necessary, and hence, although they are admirable, they are not praiseworthy. Further, men inherit very different dispositions. Now, it is manifest that all those good actions which men do by virtue of the good dispositions which they have inherited, cannot be really praiseworthy; for these actions are those which are prompted by the right desires which are due to their inherited dispositions. To regard such admirable actions as praiseworthy is as absurd as it would be to regard a flower as praiseworthy for being beautiful. And yet such actions are regarded as praiseworthy and are praised.

Since, therefore, men have undoubtedly been mistaken in regarding many actions as praiseworthy, including many that are considered most praiseworthy, it is not difficult to believe, on sufficient evidence, that they have been mistaken in regarding other actions as praiseworthy.

We have now to consider the arguments which can be urged against the supposition of free-will. We shall first consider the philosophical argument.

In discussions on the subject of the freedom of the will, the word *free* is used in the sense *not determined*, or *not*

necessary, not in the sense *not compelled*. Neither party in the discussion regards man as *compelled* to act in the way he does; for the word *compulsion* would imply that the action was performed *unwillingly*. Both parties agree that all human actions, except those which are unconsciously performed, are performed under the direction of the will. The real question at issue between the two parties is whether man can, or cannot, will to act otherwise than he does. Those who hold that the will is free maintain that, when several courses of action (including inaction) present themselves in our consciousness (in most cases, two courses present themselves, to do a particular action, or to refrain from doing it), it is possible for us to take any one of the courses of action presented, and, therefore, to will to take any one of these courses of action: on the other hand, those who hold that the will is not free maintain that it is impossible for us to take any other course of action than that which we actually take.

The philosophical argument against free-will is derived from the axiom "Every event has a cause." The events or phenomena which take place in the world are of two kinds, physical and psychical. The phenomena or events of the physical world are changes of motion: the phenomena or events of the mental world are changes of consciousness. The axiom asserts that a change of either kind cannot take place without a cause. The axiom undoubtedly appears to the mind to be necessarily true; but it will be well to devote a little space to consider whether the axiom is to be accepted as universally true, without any reservation whatever, or whether it is possible to regard it in the light of a general law which, while it holds true of most events, may yet not hold true of a particular class or classes of events (as, for example, the phenomena of the will).

At first sight, it would seem that the apparent necessity

of the axiom must be illusive; for, even if the axiom be really necessarily true, it would seem to be impossible for man to see the necessity; for man knows nothing of the nature of a change; he has only the relative knowledge of the relations of changes to one another; the real nature of a change is a mystery to him. How, then, can it be possible for him to know that a change must necessarily have a cause?

But the reason why it is seen to be necessarily true that a change has a cause is not because it is a change, but because it happens at a particular time. The mind refuses to believe that this something which we call a change, whatever it is, can happen at a particular time, unless there is some reason why it should happen at this time rather than at any other time.

Let us first consider a change of motion. Conceive a body at rest suddenly beginning to move, or a body in motion suddenly moving quicker or slower. To suppose that this change takes place without a cause is to suppose that the change takes place at this particular time, notwithstanding that there is no reason why it should take place at this particular time rather than at any previous or subsequent time. The mind refuses to entertain the possibility of this. If a change takes place, it must take place at a particular time, and the fact that it takes place at a particular time rather than at any previous or subsequent time convinces the mind, beyond the possibility of doubt, that there is some reason why the change should take place at this time rather than at any other time. In other words, there must be some cause for the change.

Let us now consider a change of consciousness. Conceive a change of consciousness to take place suddenly. For example, let us suppose that a painful sensation is suddenly felt. As in the case of a change of motion, so also in this case, the mind refuses to believe in the possibility of this pain

suddenly arising at this particular time, unless there is some reason why it should arise at this particular time rather than at any other time. In other words, the mind cannot but believe, beyond the possibility of doubt, that there is a cause for the pain. The same reasoning applies to all changes of consciousness.

Apart from this philosophical proof, the axiom stands the test of experience, so far as experience is able to test it. So far, indeed, as it applies to changes of motion, experience may be said to establish its truth beyond question. All experiments on the motion of bodies confirm it, and the predictions of astronomers, daily fulfilled with the nicest accuracy, are based upon it. In its application to changes of consciousness, experience cannot test its truth with quite the same completeness; but so far as it can be tested by experience in this application, it is always found to be true. We shall first consider sensations. We know that the special sensations of the senses are caused by motions in the environment—vibrations of ether, or air, or by waves of molecular motion produced by contact with portions of the environment—and we have every reason to believe that they never arise except as effects of motion in the environment. Therefore we have every reason to believe that the special sensations of the senses do not originate without a cause.

But if the axiom is true of those simplest kinds of consciousness which are termed sensations, it would seem that it must also hold of all higher kinds of consciousness; for the higher kinds of consciousness have been shown to be evolved from sensation. They are composed of sensations and the relations between sensations. And there can be no change in the relations between sensations, unless there is a change in the sensations themselves. Therefore the axiom must be true of all changes of consciousness.

The evidence in support of the axiom, "Every event must

have a cause," is, therefore, doubly irresistible. On the one hand, the mind gives immediate assent to it as necessarily true. On the other hand, the axiom is so strongly supported on the widest possible basis of experience, that, on this ground alone, it is very difficult to refuse assent to it. In regard to its application to changes of motion, indeed, it commands universal assent. Can we, however, receive it as universally true in its application to changes of consciousness, without any reservation of doubt whatever? If the reader has any doubt, let him suppose it to be untrue in any particular case. Can a pain, for instance, arise without a cause? Could a doctor entertain for a moment the idea that a pain could arise which is not the symptom (that is, the *effect*) of a condition of the body? If a pain cannot arise without a cause, is it easier to suppose that any other sensation can arise without a cause? Have not the sensations of the senses of touch, sight, hearing, &c., always causes in the shape of motions of ether or air, or of contact with portions of the environment? And if all sensations have causes, must not all the higher kinds of consciousness which are built up of sensations also have causes? Since we have seen that a visual perception (for example) is the consciousness of the relations between present and past visual sensations, does it not follow necessarily that, if sensations have causes, so also must perceptions?

May we not, therefore, accept the axiom that every change has a cause, without the slightest tinge of doubt regarding its universal truth?

It immediately follows from this axiom that the same cause always produces the same change; for to suppose that it is possible for the same cause to produce either of two different changes, is to suppose that the change from one to the other of these changes is produced without a cause, which is contrary to the axiom. Therefore the same

cause always produces the same change. Therefore all the events which take place in the world, whether physical or psychical, are necessary events; for to suppose it possible for any event to have been different is to suppose that the same cause could produce either of two different changes, which we have just seen to be impossible. Therefore all human actions are necessary, and the will is not free.

Since difficulty is sometimes experienced in following reasoning of a general nature, we shall now apply the axiom directly to the consideration of human actions, instead of to changes in general.

We know, as a matter of fact, and quite apart from philosophical considerations, that human actions are responses which man makes to the stimuli which he receives from his environment. Science has told us so much; but it has not yet been able to supply all the links in the chains of cause and effect which connect our actions with preceding phenomena. If science were able to do this completely, then the question of the freedom of the will would be finally decided: we should know that our wills are not free. It would then be clear to us that our actions are as necessarily determined as the movements of inanimate bodies are known to be. Indeed, in that case, given the man and given his environment, it would be a purely scientific problem to predict the action which the man would take. The science of man, however, is not yet sufficiently advanced to be able to say that all our actions are necessarily determined. Although it has been able to show that our actions are very largely influenced by preceding phenomena, it has not yet proved that they are completely determined by such preceding phenomena. Philosophy, however, can supply this deficiency of science by means of its axiom, "Every event has a cause." From this axiom we have shown that it necessarily follows that from the same cause there can

only be one effect. Applying this axiom to human actions, we conclude that, given the man and given his environment, only one action can result; for, if the man and his environment are both given, the cause of the action is given, and, therefore, by our axiom, only one action is possible.

If it be urged against this argument, that it assumes that a man is not responsible for the character of his mind and the nature of his environment at the time of the action, whereas he is responsible for both, it is replied that the argument at least proves that the man is not responsible for this particular action, unless he is responsible for preceding actions. But the same argument, if applied to any particular preceding action, will prove that he is not responsible for this action, unless he is responsible for actions preceding it. And, in this way, we can go back to the very earliest actions of his life, even to the hour of his birth and before birth, when it will be admitted that he was not responsible for his actions.

Therefore, unless we are prepared to admit that effects can take place without any cause, we are driven, with the force of a rigid demonstration, to believe that our wills are not free, and that our actions are all necessary.

In the second place, the supposition that voluntary actions are sometimes determined by something different from desire is beset with very great perplexities.

The *will* to act in opposition to the strongest desire must either have a cause, or it must be uncaused. We shall consider the latter supposition first.

The supposition that the will to act in a particular manner—let us say the will of a drunkard to abstain from drink on an occasion of temptation—is without a cause, takes from the action both all its praiseworthiness and all its virtue; for, in order that we may regard an action as either praiseworthy or virtuous, it is a necessary condition that we should believe

that the action was prompted (caused) by a good motive; that is, the intention to give pleasure either to others or to oneself, or else the motive of duty. If we believed that the man had no reason at all for his action, we could not regard his action as either virtuous or vicious, praiseworthy or blameworthy. On the other hand, if we believed that the man had a good reason for his action, that he abstained for the sake of his own future welfare, or that of his family, or because he felt that he *ought* to resist, we should regard his action as praiseworthy and virtuous.

Thus, while the supposition that the will is not free takes the quality of praiseworthiness or blameworthiness from actions, but leaves them virtuous or vicious respectively, the supposition that the will is free takes both these qualities respectively from all actions which are freely performed.

Taking the other alternative, let us suppose that the will to act in opposition to the strongest desire has a cause. Then the same reasoning as before shows that the cause of the will is the reason or motive for which the act is done. The cases we have to consider are those in which considerations of duty are involved; for when such considerations are not involved, the action is wholly determined by desire, and the supposed power to resist the strongest desire is not exercised. Now, we have shown in the preceding chapter that the feeling of moral obligation is the desire to avoid a particular kind of pain, namely, the painful feeling of self-blame. But, in case the force of the reasoning in the last chapter be not admitted, let us, for the sake of argument, suppose that the consciousness of moral obligation is not a desire. The only possible alternative would seem to be that it is a belief or knowledge. If the reason that we do our duty is not because we desire to do it, it must be because we believe or know that it is right that we should do it. We shall now consider whether this supposition is tenable.

If we consider the matter closely, we shall find that knowledge can never have any effect on action except in so far as it produces desire. Suppose that a man obtains, by means of perception, the knowledge that food is within reach. If he is hungry, that knowledge produces in him the desire to partake of the food; but if he is not hungry, that knowledge does not produce in him the desire to partake of the food, and he does not partake, unless it produces in him some other desire; as, for instance, the desire called curiosity, which might prompt him to examine the food closely or possibly to taste it.

The same conclusion is confirmed by considering the effects of various kinds of knowledge in every-day life. Religious beliefs influence action; but they do this, and can only do it, by producing desires. A purely intellectual belief in religious doctrines has no effect on the life whatever. In order that religious beliefs can have power to change the life, they must be held with some degree of enthusiasm; in a word, they must be faiths, which are beliefs accompanied with the desires they are adapted to produce. Again, a drunkard may know perfectly well, on the occasions when he yields to temptation, that by so doing he will procure for himself much more pain than pleasure; but this knowledge can only influence him to resist in so far as it produces the desire to abstain. If it does not produce a desire to abstain sufficiently strong to overcome his desire to drink, he yields against his better judgment.

In the same way we may show that the mere knowledge of right and wrong cannot affect action. In order that it may do this it must be accompanied by the desire to do right and by the desire to abstain from doing wrong. In a certain degree these desires necessarily accompany the knowledge, since knowledge can never be entirely unaccompanied with feeling. But the desires are often very weak, even

when the knowledge is perfect. Many know perfectly what they ought to do, and yet have very little desire to do it.

Therefore, since the motive of duty is neither belief nor knowledge, it must be a desire. Whence it follows that action is completely determined by desire.

In the third place, whatever value may be attached to the reasoning in preceding chapters by which it has been attempted to explain human actions and human consciousness as the result of the process of evolution, the same value attaches to it as an argument against free-will; for human actions and human consciousness are there explained as the effects of causes. In particular, the chapter on "Moral Obligation" contains an explanation of the rise of the feeling of duty as the gradual effect of preceding causes acting during the whole course of the social evolution of man.

A fourth argument against free-will is based on the consideration that, apart from the supposition of a miraculous interposition, we are compelled to regard man as evolved from those simplest forms of life which we have called monads. Whence it follows that, unless we have recourse to a miraculous interposition in the process of evolution, or unless we regard the monads themselves as possessing free-will, we are compelled to deny free-will to man himself.

A final argument against free-will is derived from the consideration of the manner in which large communities of men are affected by the same causes.

Individuals differ so much from one another, and the same individual is in such different moods at different times, and it is, further, so difficult to estimate these differences in particular cases, that it is very difficult to test the truth of the law of causation in its application to the actions of individuals. But different communities of men are often extremely similar to one another. When large communities are composed of nearly the same class of men, or of nearly

the same proportions of different classes of men, and these communities have similar environments (for example, two large manufacturing towns), then individual differences may be supposed to neutralize one another, and we may test the law of causation in its application to such communities. It is found that the statistics of such communities are closely similar. This strongly tends to show that all human actions take place in accordance with the law of causation; for if a considerable part of them were free actions, the actions of communities of men would not conform to this law. Whence it follows that man is a machine, and that all his actions are necessary.

There is one department of will which we have not yet considered. We have so far concerned ourselves only with that department of will which prompts to action; but will does not always prompt to action, or to abstention from action, in cases where there are incentives to action. It controls thought as well as action. The so-called faculty of *attention* is not a distinct faculty, as it is sometimes represented to be. It is the result of the application of the will to thought. The mind generally pays special attention to one of the threads of thought simultaneously present in consciousness. The different elements of present consciousness call up by the laws of association representations both pleasant and painful. The former give rise to desires to pursue the corresponding threads of thought, while the latter give rise to desires to exclude the corresponding threads of thought from consciousness. The thread of thought which corresponds to the strongest desire is that which secures the chief attention of the mind, and since the quantity of consciousness which can be present simultaneously is limited, the other threads of thought become faint, or go out of consciousness altogether. Thus the attention given by the mind to a portion of consciousness is the result of the strongest desires present in consciousness.

APPENDIX.

ON the supposition that man consists of a community of monads, and nothing else beside, we should expect to find that the analogy between the monad community and the social community is very close, and that if there are any failures in the analogy, such failures must be due to the difference in the constitution of the two communities.

In *Man, the Microcosm*, the analogy between the two communities has been considered in detail, and the cases in which the analogy fails have been shown to be due to the difference in the constitution of the two communities. A brief outline must here suffice.

(1) The nervous system is a connected system of centres of consciousness, one principal centre, and the rest subordinate and sub-subordinate centres of different grades, precisely analogous with the centres of government of the social community, one principal, and the rest subordinate, of different grades; further, a subordinate centre of consciousness is partly independent, and partly dependent on a higher centre, in the same way that, in the social community, a subordinate or local centre of government is partly independent, and partly dependent on a higher centre.

(2) National actions are analogous with human actions. The ambassadors at foreign courts are analogous with the external senses of man, being the eyes, ears, and voice of the

nation. Afferent currents of consciousness pass from them to the centre of government, whence efferent currents pass to the administrative department of the government, whereby the nation acts in adaptation to its environment, in precise analogy with what takes place in the case of human actions. Similarly, the internal government of the nation is analogous with that of man.

Those national actions which are governed by the principal centre of government correspond to the voluntary actions of man, while those national actions which are governed by subordinate or local centres of government correspond with the involuntary actions of man.

(3) The function of the sovereign in an absolute monarchy is analogous with that of the principal monad in the brain, or principal nervous centre, of man. In accordance with the information which he receives, he decides upon the action to be taken, and gives orders to the proper administrative department for effecting it, in precise analogy with what takes place in the case of man.

The chief failure in the analogy consists in this, that a nation consists of many minds, whereas in man there appears to be only one mind. Now, according to our theory, although the principal monad performs by far the most important part in the government of the monad community, a very much greater share than that which the sovereign performs in an absolute monarchy, the monad community is really a community of many minds. We shall now endeavour to explain the reason of this failure in the analogy between the two communities.

In the monad community the principal monad regards itself as the subject of the whole of the consciousness of the community. It regards the senses, for example, as merely its material instruments. The whole of the processes of seeing, hearing, &c., it supposes to have been performed by

itself. So also with regard to the consciousness by which voluntary actions are guided; it supposes them all to be guided solely by its own consciousness, whereas, according to our theory, they are partly guided by the consciousness of subordinate monads. It even regards itself as the sole doer of all the involuntary actions, whereas, according to our theory, it is not concerned in the doing of such actions in any way whatever. There is nothing analogous to this in the social community. The sovereign is perfectly aware that the information, or, so to speak, the perceptions, of the doings of other nations come from his ambassadors (the eyes and ears, &c., of the nation); he is not under the illusion that he himself sees and hears what foreign governments are doing and saying. He is also fully aware that his ministers and officials have a share in the consciousness by which the national actions which he directs are governed; and with regard to those actions which are directed by subordinate centres of government, without reference to him, he is aware he has not been concerned in them in any way whatever.

Now, it is manifest that our theory requires us to regard the principal monad as under an illusion in regarding itself as the sole agent in the perceptions of the senses, and as the sole conscious agent of all the actions of the monad community. We shall now explain why this illusion arises in the principal monad, and why the corresponding illusion does not arise in the mind of the sovereign of the social community.

In the social community the individuals are free to move from place to place, while in the monad community there is no such freedom of motion, the monads being fixed in relative position, side by side. This difference in the constitution of the two communities has produced the following differences in the results of the process of evolution in the two cases.

(1) The circulation of consciousness takes place with much less loss of vividness in the monad community than in the social community. In the former case there is very little resistance to the passage of consciousness, in the latter there is great resistance. For example, in the social community the passage of consciousness from the ambassadors to the king takes place with great loss of vividness. The king receives a verbal description of what the ambassadors have seen and heard. Now, the best verbal description of a scene is very much less vivid than the actual perception of the scene. Therefore there is great loss of vividness in the transmission of consciousness from the ambassadors to the king (from the senses of the community to the brain). In the monad community, on the other hand, the transmission of consciousness from the senses to the brain takes place with extreme rapidity, therefore with very little resistance, and therefore with very little loss of vividness. Therefore the perceptions received by the principal monad are practically as vivid as if they were its own perceptions.

Again, when a sense of injustice or hardship arises in any part of the social community, and is transmitted to the king, the uneasiness thereby produced in the mind of the king is a very faint representation of that which is felt by the portion of the community in question. In the monad community, on the other hand, when any portion of the community is suffering pain, the monads thus affected transmit their painful feelings to the principal monad with little or no diminution of intensity, and by so doing compel it to take immediate measures to put the matter right.

(2) Further, in the monad community the process of specialization has been carried so far that each monad, while it has been specially fitted to perform its special function in the community, has, at the same time, almost lost the power of performing the other functions of life. Its

special vitality has gained at the expense of its general vitality. In the social community, on the other hand, the process of specialization has not proceeded nearly so far as this. The members of the community are able to perform the other functions of life in addition to their own special functions, although, of course, they perform them less efficiently.

Let us, for the sake of argument, conceive the existence of a social community in which the process of specialization has been carried as far as in the monad community, and let us further suppose that the circulation of consciousness takes place as rapidly and with as little loss of vividness as in the monad community. It is, of course, an impossible supposition; but it will enable us to easily realize how the illusion of mental unity has arisen in the monad community. What would happen in this hypothetical social community? In the first place, the king would have practically lost the power of performing the functions of the specialized senses, which would be practically confined to the ambassadors at foreign courts, the "eyes, ears, and voice" of the community. The king would, therefore, be devoid of the special senses, and would, therefore, be unaware of the existence of other members of the community, since such knowledge can be acquired only through the senses. He would receive from his ambassadors perceptions of the doings and sayings of surrounding nations which would be practically as vivid as the perceptions of the ambassadors themselves. Being unaware that these perceptions were communicated to him by other members of the community, he would naturally suppose that they originated in his own mind, and would conclude that he was the sole agent in seeing, hearing, &c., the perceptions of the nation's environment which, in reality, were transmitted to him by his ambassadors.

Further, if, in addition to the above suppositions, we

suppose that the sovereign received perceptions not of other nations only, but of his own nation also, in the same way that, in the monad community, the principal monad receives from the eyes perceptions not only of the bodies of other men, but of its own body also, he would receive perceptions of the actions of his own nation, and would observe that such actions took place in obedience to his will or direction. Being in ignorance of the existence of other members of the community besides himself, he would naturally ascribe such actions to his own sole agency. He would even ascribe to his own agency those national actions which originated at subordinate centres of government, since he would be unaware of the existence of any other beings in the community to whose agency he could ascribe them. He would suppose that he performed such actions involuntarily. If we further suppose the precedents furnished by the records of the Foreign Office to be communicated to the sovereign, not by the slow method of speech, writing, &c., as in the actual case, but in the rapid method in which it takes place in the monad community, there would arise the phenomenon of a national memory. The sovereign would suppose that he had remembered the past actions of the nation, whereas they would, in reality, have been communicated to him by the foreign minister.

Under these suppositions, therefore, there would arise in the mind of the sovereign a consciousness which may be termed a *national consciousness*. There would be vivid perceptions of the actions of other nations and of his own nation, formed by the integration of the perceptions of the ambassadors in the same way that the perceptions of the principal monad are formed by the integration of the sensations of the monads in the retina of each eye. There would also arise memories of past national actions. There would also arise the illusion that he was the sole subject of these

perceptions and memories and the sole agent of the actions of his own nation, whence would necessarily arise the illusion that the national mind was a single entity. In short, phenomena of national consciousness would be evolved analogous to all the phenomena of human consciousness.

This process of the evolution of a national *ego* does not, of course, take place in the actual social community, since the suppositions under which we have argued do not hold true in it. But in the monad community all the suppositions are true, and a corresponding evolution of the human *ego* necessarily takes place. The principal monad is unaware of the existence of other beings in the community besides itself. It receives the perceptions of the monads of the senses, which are communicated to it with very great rapidity and therefore with little loss of vividness. It therefore regards itself as the sole agent in perception. Further, it observes that many of the actions of its own community (embracing all the most complex of such actions) are performed in obedience to its will, and, therefore, since it is unaware of the existence of other beings in the community, it regards itself as the sole agent of such actions. It even regards itself as the sole agent of involuntary actions, although they are not performed in obedience to its will; being, in a manner, compelled to do so by reason of its ignorance of the existence of other beings in the community to whom to ascribe them. In a word, it mistakenly identifies itself with the whole mind of the community.

Therefore the fact that there is no appearance of mental unity in the social community analogous with the mental unity of the monad community is perfectly consistent with the theory we are propounding.

